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State Agricultural and Mechanical College.

* * *

ALABAMA POLYTECHNIC INSTITUTE.

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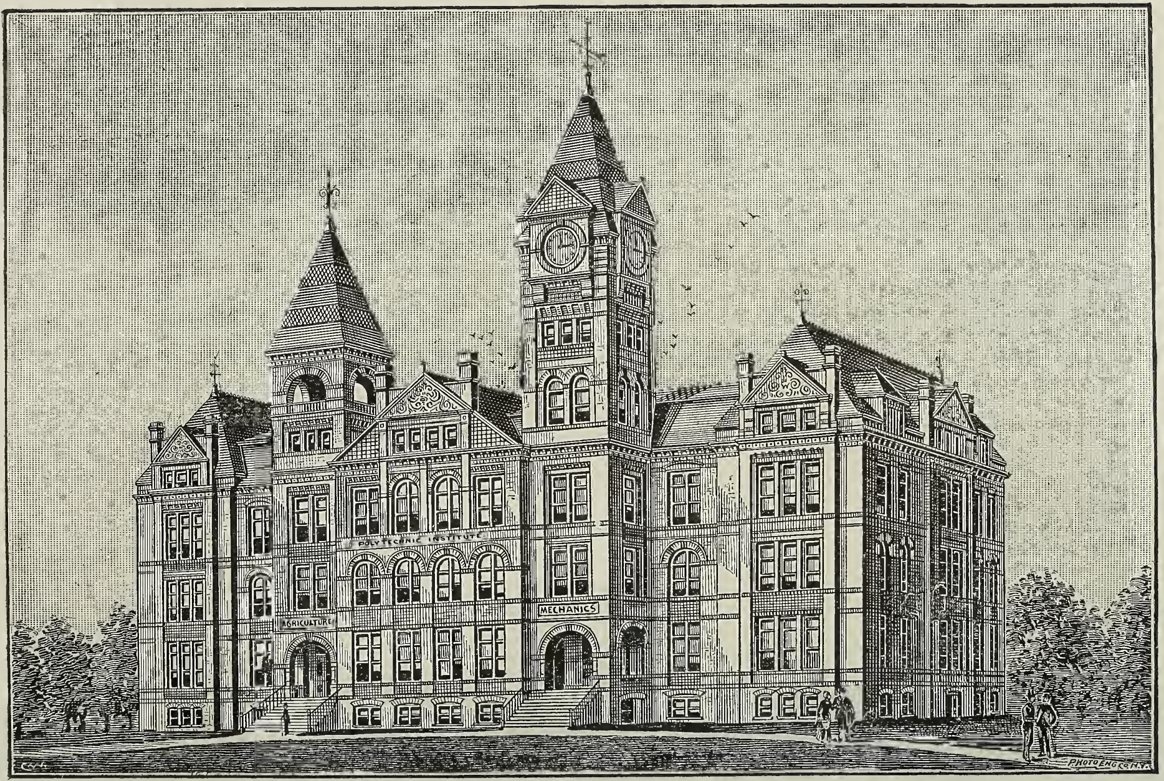


AGRICULTURAL AND MECHANICAL COLLEGE.

Alabama Polytechnic Institute.

(95)
LB

CATALOGUE

OF THE

State Agricultural and Mechanical College.

ALABAMA POLYTECHNIC INSTITUTE.

1888-'89.

AUBURN, ALABAMA.

BOARD OF TRUSTEES.

His Excellency THOMAS SEAY, President		ex-officio
Hon. SOLOMON PALMER, Superintendent of Education		ex-officio
Hon. JONATHAN HARALSON	(term expires 1895.)	Selma
Hon. R. F. LIGON	(term expires 1895.)	Tuskegee
Hon. JOHN W. BISHOP	(term expires 1895.)	Talladega
Hon. C. C. LANGDON	(term expires 1893.)	Mobile
Hon. R. F. KOLB	(term expires 1893.)	Eufaula
Hon. J. B. MITCHELL	(term expires 1893.)	Seale
Hon. J. G. GILCHRIST	(term expires 1891.)	Montgomery
Hon. M. L. STANSEL	(term expires 1891.)	Carrollton
Hon. C. C. HARRIS	(term expires 1891.)	Decatur

E. T. GLENN, Treasurer.

F. M. REESE, Secretary and Auditor.

Note.—The College Building represented in the engraving is now in process of construction, and will be completed in October.

C
A.1.H
1888/89- [illegible]

FACULTY AND OFFICERS.

WM. LeROY BROUN, M. A., LL. D.,
President, and Professor of Physics and Astronomy.

OTIS D. SMITH, A. M.,
Professor of Mathematics.

P. H. MELL, M. E., PH. D.,
Professor of Natural History and Geology.

JAMES H. LANE, C. E., A. M.,
Professor of Civil Engineering and Drawing.

J. S. NEWMAN,
Professor of Agriculture and Director of Experiment Station.

CHARLES C. THACH, B. E.,
Professor of English and Latin.

N. T. LUPTON, A. M., M. D., LL. D.,
Professor of General and Agricultural Chemistry and State Chemist.

LIEUT. JOHN B. McDONALD, 10th Calvary U. S. A., (West Point)
Commandant and Professor of Military Science.

GEORGE H. BRYANT, M. E., (Mass. Inst. Technology)
Director of Laboratory and Instructor of Mechanic Arts.

GEORGE PETRIE, M. A., (Univ. Va.)
Adjunct Professor of Modern Languages and History.

L. W. WILKINSON, B. Sc.,
Assistant in Chemical Laboratory.

J. J. WILMORE, M. E.,
B. A. BLAKEY, M. Sc.,
Assistant Instructors in Mechanic Arts.

S. C. PITTS, B. Sc., *
J. T. GREGORY, B. Sc.,
G. F. BROUN, B. Sc., †
Assistants in Mathematics and English.

J. H. DRAKE, M. D.,
Surgeon.

C. C. THACH,
Librarian and Recording Secretary.

O. D. SMITH,
Corresponding Secretary.

* Resigned January 1st, 1889.
† Appointed January 1st, 1889.

62278

OFFICERS

OF THE

Agricultural Experiment Station.

BOARD OF VISITORS.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION:

J. G. GILCHRIST,
R. F. LIGON,
J. B. MITCHELL.

OFFICERS OF THE STATION:

W. L. BROUN	President
J. S. NEWMAN	Director and Agriculturist
N. T. LUPTON	Vice Director and Chemist
*P. H. MELL	Botanist
———————	Biologist.

ASSISTANTS:

ISAAC ROSS	First Asst. Agriculturist in Charge of Live Stock and Dairy
JAS. CLAYTON	Second Assistant Agriculturist
J. T. ANDERSON, PH. D	First Assistant Chemist
L. W. WILKINSON, M. SC	Second Assistant Chemist
P. L. HUTCHINSON	Third Assistant Chemist
T. D. SAMFORD, B. SC	Assistant Botanist

*Prof. Mell has also charge of Meteorological Observations.

OBJECT OF THE COLLEGE.

The leading object of the College, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and the applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially those that relate to agriculture and the mechanic arts, so far as the facilities at its disposal will permit; and at the same time the discipline obtained by the study of languages and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special or technical instruction given is thus based on a sound, general education.

The College, in fact, has become a distinctive school of industrial science—or Polytechnic Institute—a title which by resolution of the trustees is permitted to be inscribed on the catalogue—and work of great value to the youth of the State is now being accomplished by fitting them, by a thorough science-discipline, in which handcraft in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The College now possesses facilities for giving laboratory instruction in applied science in the following departments:

I.—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres and is supplied with illustrative specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in presence of the object discussed, and during the year exercises in practical agriculture and horticulture of an educational character are given the students who enter upon this course of study.

II.—IN MECHANIC ARTS.

The laboratory of Mechanic Arts is used as an auxiliary in industrial education, as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory. and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the College each student enters this school, and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus, by associating manual and mental training, to thoroughly educate the student for the duties of life, whatever his vocation may be. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall 90x50 feet, and is provided with a twenty-five horse power Corliss engine, with indicator, a planer, circular saw, band-saw, two scroll saws, a buzz planer, twenty stands with lathes, with full sets of lathe and carpentry tools required for instruction.

A brick building with two rooms, each 30x35 feet, has been constructed especially for instruction in working iron.

One room is equipped with twelve forges and tools required for a forge department, the other with a cupola furnace, having a capacity of 1,000 pounds, a core oven, moulding benches and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from the engine.

The machine department is equipped with eight engine lathes—one speed lathe, one 20-inch drill press, one post drill, one shaper, one five-foot planer, one universal milling machine, a corundum tool-grinder and small emery grinder.

The chipping and filing department is arranged with benches and vises for twelve students.

The Weston dynamo of five horse-power, used at present for lighting the halls, is located in the large hall of the Mechanic Art laboratory.

It is designed, when the buildings now under construction are completed, to supply the different laboratories with electricity by this dynamo.

III.—IN PRACTICAL CHEMISTRY.

The new chemical laboratory is supplied with new and modern apparatus, and in its entire equipment affords excellent facilities for instruction in practical chemistry.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that will accommodate sixty students, and lecture room with capacity for one hundred seats and nine other rooms, all appropriated to instruction and research in chemistry.

It is equipped with the improved modern appliances necessary for instruction and investigation.

IV.—IN PHYSICS AND MINERALOGY.

In the main College structure, now being rebuilt, provision will be made for laboratory work in these and in other departments of science. Temporary rooms are now used, and apparatus is supplied as demanded by the work of the College.

V.—IN BOTANY, ETC.

In the work of the agricultural experiment station, investigations in botany and entomology will be given special attention, and unusual opportunities will be offered advanced students for practical work in these departments in laboratories especially fitted with appliances for research.

VI.—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work has been provided for the use of students, and the customary exercises in the field are given.

VII.—IN DRAWING.

All the students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution.

VIII.—IN MILITARY TACTICS.

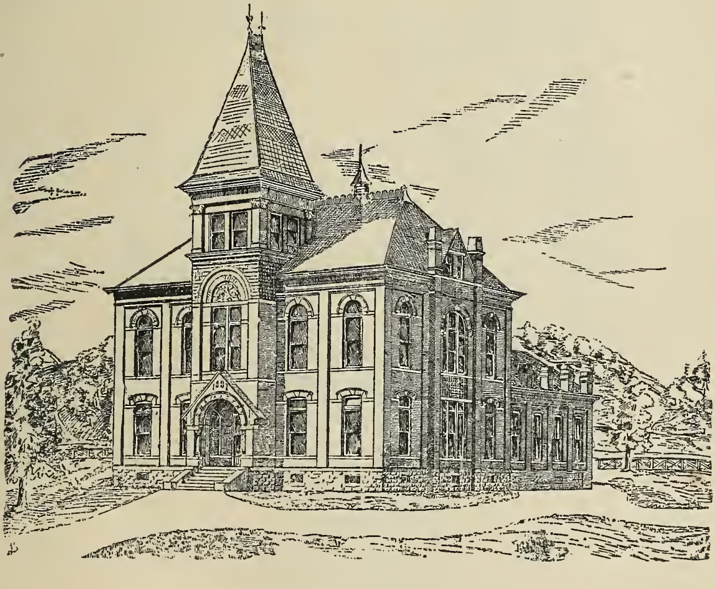
Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is under the charge of Lieut. J. B. McDonald, 10th Cavalry, U. S. A.

It has recently been supplied with new cadet muskets and accoutrements for the corps, and for artillery practice, with two three-inch rifle guns, carriages and limbers.

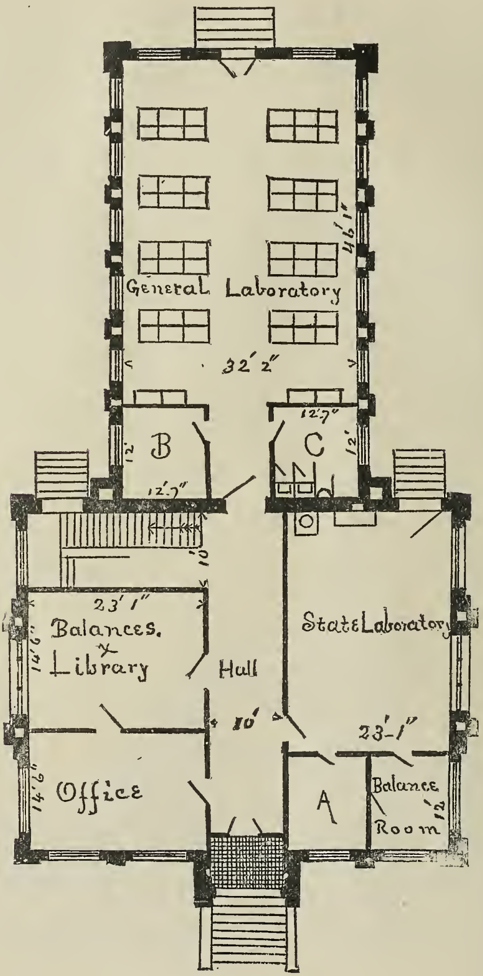
COLLEGE BUILDINGS.

The main College building was destroyed by fire on the 24th of June, 1887. The frontispiece is an engraving of the building, 160 by 71 feet, now in process of construction. It will contain, exclusive of the basement story, thirty-five rooms. This building will not be used for dormitories for students, but will be appropriated for purposes of instruction. It will contain the lecture rooms and offices of the professors' laboratories, library, museum, armory, etc. In October next all the departments of the college will be in their permanent rooms in the new building.



CHEMICAL LABORATORY.

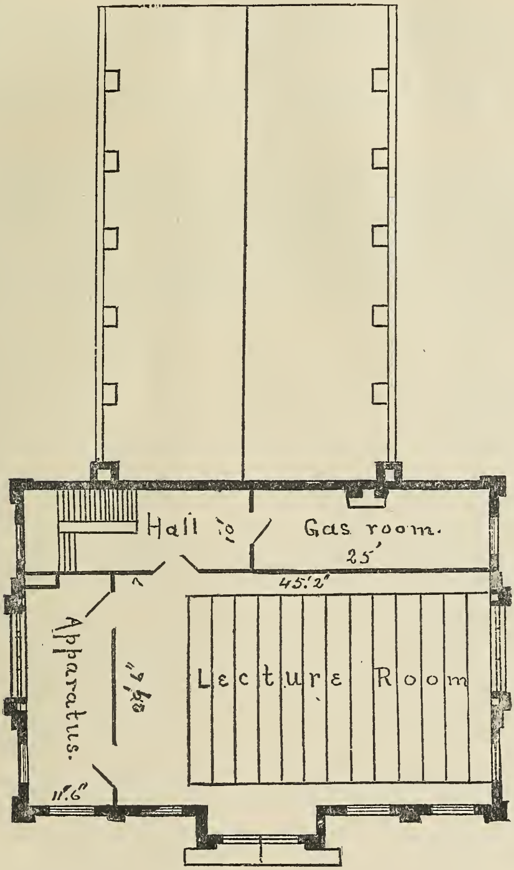
The new chemical laboratory is a handsome two-story structure, 40 by 60 feet, with a rear projection 35 by 60 feet of one story and basement. The exterior is of pressed brick, with cut stone trimmings, and terra-cotta ornamentation.



FIRST FLOOR.

A, Spectroscope and polariscope room; *B*, Assistant's private room; *C*, Combustion-furnace room.

On entering, the first room to the left is the office of the professor, to the rear of which is the library and balance-room. On the right, extending the whole length of the floor, is the State laboratory and laboratory for research. Two small rooms are cut off from this, one a balance-room, and the other for the spectroscope and polariscope. Leading from the rear of the main hall is the door which enters the large laboratory for general work. Two rooms are cut off from this—one for combustion furnaces and the other a private working-room for the assistant.



SECOND FLOOR.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains the latest improved working-tables, with water, gas and every necessary appliance for chemical work. Niches in the wall opposite each working-table, with hoods where necessary, connect with flues, and furnish

UNIVERSITY OF ILLINOIS
LIBRARY

the best possible means of escape for deleterious vapors, while ventilators in the ceiling furnish additional means for getting rid of noxious gases. The pitch is sixteen feet in the clear, with paneled ceiling of oiled southern pine. The rooms are wainscoted throughout and finished in natural wood.

The second story contains a lecture-room and room for gas analysis. Around this lecture room are cases for containing crude and manufactured products, illustrating the subjects of agricultural and industrial chemistry, which are prominent subjects taught in this institution.

LANGDON HALL.

This is a two-story building, ninety by fifty feet. The second story is the audience hall, used for commencement and other public occasions.

The first story is appropriated to the laboratory of Mechanic Arts. This building is at present temporarily used for recitation rooms, and will continue to be so used until the completion of the new College building.

GRADUATES IN 1888.

CLASS OF 1888.

WITH DEGREE OF BACHELOR OF SCIENCE. (B. Sc.)

Cyrus Washington Ashcraft,	Clay.
Robert Love Bennett,	Texas.
George Fleming Broun,	Lee.
Fontaine Broun,	West Virginia.
Henry Lee Broun,	Virginia.
John Hodges Drake, Jr.,	Lee.
Edmund Wiley Foster,	Mobile.
John Thomas Gregory,	Lauderdale.
Eugene Willis Harris,	Lee.
George Abner Huguley,	Georgia.
William Lyman,	Shelby.
Edwin Conway Macartney,	Mobile.
Thomas Drake Samford,	Lee.
Otis Oliver Smith,	Lee.
Samuel Oliver Taylor,	Lee.

WITH DEGREE OF MASTER OF SCIENCE. (M. Sc.)

Vassar Lyle Allen, B. Sc.,	Montgomery.
Edward Read Lloyd, B. Sc.,	Lee.
Wilson Herbert Newman, B. Sc.,	Lee.
Charles Woodard Simmons, B. Sc ,	Dale.

WITH DEGREE OF CIVIL ENGINEER. (C. E.)

Charles Hunter Ross, B. Sc.,	Lee.

Distinguished Students.

AWARDED HONOR CERTIFICATES IN 1888.

The students of each class, who secure a grade above 90 in three or more subjects, are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1888:

FIRST CLASS.

Cyrus Washington Ashcraft,	Clay.
Robert Love Bennett.	Texas.
George Fleming Broun,	Lee.
Fontaine Broun,	West Virginia.
Henry Lee Broun,	Virginia.
John Hodges Drake, Jr.,	Lee.
John Thomas Gregory,	Lauderdale.
William Lyman,	Shelby.
Edwin Conway Macartney,	Mobile.
Thomas Drake Samford,	Lee.
Otis Oliver Smith,	Lee.

SECOND CLASS.

Thomas Jefferson Brooks,	Georgia.
Aaron Jason Burr,	Georgia.
Bolling Hall Crenshaw,	Butler.
Howard Grayson Crowder,	St. Clair.
Howard Staten Doster,	Autauga.

Percival Lewis Dryer,	Macon.
Walter Davis Dunlap,	Dallas.
Arthur St. Charles Dunstan,	Shelby.
Pleasant Lee Hutchinson,	Georgia.
Oscar Don Killebrew,	Dale.
Frank Phillips,	Florida.
Hugh McGehee Taylor,	Lee.
Paul Turner Vaughan,	Dallas.
Frederick Henry Vernon,	Chambers.
Thomas Morgan Watlington,	Marengo.

THIRD CLASS.

Benjamin Cheney Abernethy,	Florida.
Houston Franklin Cooper,	Georgia.
George Woodhull Emory,	Lee.
William Francis Feagan,	Bullock.
Daniel Gillis,	Georgia.
William Groce Harrison,	Talladega.
Robert Edward Daniel Irvin,	Lee.
Felix Hope Leslie,	Russell.
Frank Davis Milstead,	Elmore.
Herbert Payne Robertson,	Lowndes.
William Walter Robinson,	Tallapoosa.
Dixon Hamilton Tharin,	Georgia.
George Houston Waring,	Georgia.
James Fielden Wilkinson,	Dale.

FOURTH CLASS.

Lawrence Earnest Baker,	Jefferson.
Harmon Benton,	Barbour.
Frank Jarvis Bivins,	Georgia.
James Albert Cox,	Lee.
Arthur Thomas Dudley,	Georgia.
Beverly Franklin Harwood,	Perry.
Hendley Varner Kell,	Georgia.
Frank Allemong Lupton,	Lee.
Wm. Audley Marshall,	Georgia.
Joseph Hardy Spence,	Talledega.
Joseph Leslie Tucker,	Shelby.

CATALOGUE OF STUDENTS

FOR THE SESSION 1888-'89.

GRADUATE STUDENTS.

[*Residence is Alabama when State is not named.*]

NAME.	RESIDENCE
George Fleming Broun, B. Sc.,	Lee.
John Hodges Drake, Jr., B. Sc.,	Lee.
John Thomas Gregory, B. Sc.,	Lauderdale.
Eugene Willis Harris, B. Sc.,	Lee.
Sterling Chambers Pitts, B. Sc.,	Russell.
Augustus Archilaus Persons, B. Sc.,	Lee.
Thomas Drake Samford, B. Sc.,	Lee.

UNDERGRADUATE STUDENTS.

FIRST CLASS.

Leslie Dallas Burdett,	Georgia.
Aaron Jason Burr,	Georgia.
John Robertson Clower,	Lee.
Edmund Collins Cochran,	Montgomery.
Abednego Jackson Crawford,	Lee.
Bolling Hall Crenshaw,	Butler.
Arthur Campbell Crowder,	Jefferson.
Howard Grayson Crowder,	Jefferson.
Howard Staten Doster,	Autauga.
Percival Lewis Dryer,	Macon.
Arthur St. Clair Dunstan,	Virginia.
Pleasant Lee Hutchinson,	Georgia.
Oscar Don Killebrew,	Dale.
Andrew Manly Lloyd,	Lee.
William Lane Martin,	Jefferson.
M. Downer Pace,	Macon.

James Miles Quarles, A. B.,	Clay.
Thomas Alexander Ross,	Lee.
Edgar Johnson Spratling,	Chambers.
Hugh McGehee Taylor,	Montgomery.
Paul Turner Vaughan,	Dallas.
Frederick Henry Vernon,	Chambers.
Thomas Morgan Watlington,	Marengo.
Norman Rutherford Weaver.	Dallas.

SECOND CLASS.

Benjamin Cheney Abernethy,	Florida.
James William Bivins,	Lee.
Benjamin Wilbur Breedlove,	Macon.
Wilmer Calloway,	Montgomery.
Edward Lawrence Chambliss,	Wilcox.
George Samuel Clark,	Montgomery.
Walter Girard Cook,	Lowndes.
George Woodhull Emory,	Lee.
Stonewall Jackson Emory,	Lee.
Francis Maury Fontaine, Jr.,	Georgia.
Daniel Gillis,	Georgia.
William Groce Harrison,	Talladega.
Robert Edward Daniel Irvin,	Lee.
Hunter Allen Lang,	Jefferson,
Lionel Clarence Levy,	Georgia.
John Hammond Little,	Lee.
Francis Brooks Matthews,	Lee.
Wilmot Bivins Matthews,	Lee.
Frank Davis Milstead,	Elmore.
John Milton,	Florida.
Robert Ernest Noble,	Calhoun.
James Turner Persons,	Russell.
Reuben Hayne Poole,	Georgia.
Edward Clyde Powers,	Lee.
Edward Hill Pritchett,	Lowndes.
James Edward Ray,	Marshall.
Herbert Payne Robertson,	Lowndes.
Frank Ford Snedecor,	Jefferson.

Percy Willett Terry,	Jefferson.
McKennie Thomas,	Coosa.
Thomas Chilton Thorington,	Montgomery.
George Houston Waring,	Georgia.
William Cameron Weisinger,	Talladega.
James Fielder Wilkinson,	Dale.
Joseph Archibald Williams.	Jefferson.

THIRD CLASS.

Robert Sidney Adair,	Lee.
Lawrence Ernest Baker,	Jefferson.
Paul Bedell,	Lee.
Harmon Benton,	Barbour.
Frank Jarvis Bivins,	Lee.
Thomas Jefferson Boyd,	Lee.
Seaborn Jesse Buckalew,	Chambers.
Edgar Duncan Burts,	Georgia.
James Albert Cox,	Lee.
James Nathaniel Dean,	Montgomery.
John Christian Driver,	Perry.
Arthur Thomas Dudley,	Georgia.
Oscar Eberhart,	Georgia.
Walter Edward Fitzgerald,	Georgia.
Jackson Wise Gammill,	Chambers.
William Thomas Glass,	Georgia.
Charles Bowles Glenn,	Lee.
Douglas Francis Gordon,	Louisiana.
Benjamin Gillis Grant,	Barbour.
William Hartman Hahr,	Georgia.
Dorian Hall,	Lowndes.
Clifford Le Roy Hare,	Lee.
Bryant Clower Harvey,	Lee.
Beverly Franklin Harwood,	Perry.
Belus Ephraim Hudson,	Lee.
Cadmus Newton Hughes,	Walker.
Fletcher Moore Hurt,	Macon.
Charles Cicero Johnson,	Tallapoosa.
John Allen Jones,	Lee.

Hendley Varner Kell,	Georgia.
Raphael Semmes Kell,	Georgia.
John Calvin Kimball, Jr.,	Georgia.
Thomas Dixson Lewis,	Butler.
Frank Allemong Lupton,	Lee.
Leonard LeBaron Lyons,	Mobile.
William Audley Marshall,	Georgia.
LeRoy Boyd McCrory,	Georgia.
Isaac Isaiah Moses,	Georgia.
Glenn McCulloh,	Lee.
William Henry Oates,	Mobile.
Richard Eugene Oden,	Louisiana.
Charles Joseph Owen,	Georgia.
Bryan Homer Powledge,	Lee.
Petit Reynolds,	Macon.
William Edwards Reynolds,	Macon.
Dawson Sharman,	Lee.
James McCord Skelton,	Jackson.
Robert Clanton Smith,	Chambers.
Joseph Hardie Spence,	Talladega.
John McCullough Tharin,	Georgia.
William Augustus Thomas,	Chambers.
Jordan Emmett Thomason,	Randolph.
Layton Casey Tucker,	Lee.
Horace Turner,	Mobile.
Daniel Van Antwerp,	Mobile.
Garet Van Antwerp	Mobile.
Clanton Ware Williams,	Montgomery.

FOURTH CLASS, SECTION A.

Archie Scruggs Averett,	Georgia.
Elbert Cathey Averyt,	Shelby.
Van Clifford Bailey,	Marengo.
Charles Dunwoody Bassett,	Georgia.
William Wallace Bell,	Georgia.
Leigh Stafford Boyd,	Lee.
Charles Allen Brown,	Sumpter.
Robert Bruce Broyles,	Russell.

William Oze Broyles,	Russell.
Jacob Thomas Bullen,	Montgomery.
William Plumer Burgett,	Mobile.
Joseph Little Burr,	Georgia.
David Allston Connor,	South Carolina.
Amos Hill Cox,	Lee.
Henry Benning Crawford,	Georgia.
George William Dantzler,	Lowndes.
Stanmore Holstun Darden,	Chambers.
Henry Ticknor DeBardenleben,	Jefferson.
George Mayo DeReamer,	Florida.
Henry Farris Dobbin,	Florida.
Joseph Quinlan Dowe,	Montgomery.
Alonzo Stanford Dudley,	Lee.
John Thomas Duncan,	Georgia.
Morton Everett Duson,	Louisiana.
Porter Campbell Flanagan,	Lee.
Charles McKendree Floyd,	Chambers.
James Edward Gachet,	Lee.
Albert Edward Gilbert,	Clay.
Raleigh Frederick Hare.	Lee.
Paul Willis Harrison,	Georgia.
Samuel Pope Calaway Hatchett,	Georgia.
Walter Crafts Hazard,	Calhoun.
Joseph Andrew Holifield,	Lee.
Arthur William Holstun,	Tallapoosa.
James Shep Hunt,	Jackson.
Clifton Arthur Jones,	Lee.
Harvey Ellis Jones,	Mobile.
Byrd Beauregard Jordan,	Russell.
Benjamin Walter McCutchen,	Lee.
Duncan McDougald,	Georgia.
Alfred Huger Moses, Jr.,	Lauderdale,
Louie Sinclair Mumford,	Perry.
Leonidas Warren Payne,	Lee.
Frank Peabody,	Georgia.
Walter Evan Richards,	Chambers.
Harry Stevens Chase Roberts,	Georgia.

Richard Louis Samford,	Lee.
Brittain Hunter Saunders,	Lee.
Forest Bedford Sledge,	Sumter.
John Joseph Street,	Tallapoosa.
Archie Emmet Thomas,	Coosa.
Sheldon Lyne Toomer,	Lee.
James Arthur Tucker,	Lee.
David Marshal Walker,	Marengo.
Martin DeWitt Waters,	Georgia.
Thaddeus Clement Watts,	Montgomery.
Alfred Anderson Wellborn,	Georgia.
Richard Werner,	Georgia.
David Lewis Whetstone,	Elmore.
Richard Law Williams,	Jefferson.
Thomas Felton Wimberly,	Lee.
George De Kalb Winston,	Lee.
Porter Joshua Woodall,	St. Clair.
George Alfonzo Wright,	Lee.

FOURTH CLASS, SECTION B.

Robert Clarence Alexander,	Autauga.
Henry Augustus Andrews,	Hale.
Richard Dejane Andrews,	Hale.
William Becker,	Lee.
Posey Party Brooks,	Escambia.
James Harris Burns,	Dallas.
Harrison Keeler Deale,	Mobile.
David S. Flanagan,	Lee.
Thomas Porter Flanagan,	Lee.
John David Foster,	Lee.
Crosland Clarence Hare,	Lee.
Joseph Andrew Herron,	Montgomery.
Cassey Rex Hudson,	Lee.
Julius Cicero Hudson,	Lee.
William Coates Hurt,	Macon.
William Driskell Kelley,	Dallas.
Young Jackson,	Elmore.
Frank McLemore Moseley,	Montgomery.

Charles Carter Newman,	Lee.
William Collier Slaughter,	Madison.
Albert Ellington Thornton,	Georgia.
Charles Lee Worrell,	Macon.

SUMMARY.

Graduates,	7
First Class,	24
Second Class,	35
Third Class,	57
Fourth Class, Section A,	64
Fourth Class, Section B,	22
Total,	209

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English,	180	Agriculture,	104
History,	113	Physics,	84
French,	42	Natural History & Geology,	106
German,	45	Physiology,	34
Latin,	59	Engineering,	24
Mental Science,	10	Drawing,	137
Political Economy,	19	Mechanic Arts,	121
Mathematics,	181	Military Tactics,	190
Chemistry,	92		

MILITARY ORGANIZATION.

1888–'89.

President.
WM. LEROY BROUN.

Commandant.
J. B. McDONALD, Lieut. 10th U. S. Cavalry.

Surgeon.
J. H. DRAKE, M. D.

Cadet Captains.
B. H. CRENSHAW. H. M. TAYLOR. T. M. WATLINGTON.

Cadet 1st Lieut. and Adjutant.
P. T. VAUGHAN, JR.

Cadet 1st Lieut. and Quartermaster.
JOHN R. CLOWER.

Cadet 1st Lieutenants.
H. G. CROWDER,
F. H. VERNON,
E. J. SPRATLING,
A. M. LLOYD,
A. C. CROWDER,
A. J. BURR.

Cadet 2d Lieutenants.
T. A. ROSS,
A. ST. C. DUNSTAN,
H. S. DOSTER.

Cadet Sergeant-Major.
T. C. THORINGTON.

Cadet Q. M. Sergeant.
R. E. NOBLE.

Cadet Color Sergeant.
W. G. HARRISON.

Cadet 1st Sergeants.
F. D. MILSTEAD. B. C. ABERNETHY. JOHN MILTON, JR.

Cadet Sergeants.
F. M. FONTAINE,
W CALLOWAY,
G. H. WARING, JR.,
G. W. EMORY,
D. GILLIS,
J. W. BIVINS,
J. F. WILKINSON,
W. C. WEISINGER,
W. G. COOK.
G. S. CLARK,
P. W. TERRY,
R. H. POOLE.

Cadet Corporals.
L. E. BAKER,
J. N. DEAN,
H. V. KELL,
F. A. LUPTON,
R. C. SMITH,
W. A. MARSSHALL,
C. N. HUGHES,
C. L. HARE,
B. F. HARWOOD,
R. S. KELL,
F. J. BIVINS,
T. D. LEWIS.

Cadet Color Corporals.
J. M. THARIN,
J. H. SPENCE,
W. H. OATES,
D. HALL,
C. B. GLENN.

REQUIREMENTS FOR ADMISSION.

Applicants for admisssion must be of good moral character. To enter the fourth class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination in the following subjects:

1. Geography and History of the United States.

2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar and division into paragraphs.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers, the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots; (b) Algebra, to quadratic equations.

Those applicants who desire to continue the study of Latin in the Fourth class, should be qualified to pass a satisfactory examination in Latin grammar and the first books of Cæsar, in addition to the above subjects.

For admission to the higher classes, students should be prepared to stand a satisfactory examination on all the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactoyr.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday the 11th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the fourth class, including those of fourteen years of age, are admitted to the sub-college department, which includes the fourth class, Sec. B.

They will be advanced to full admission to the fourth class when they are qualified to pass satisfactorily the required examinations.

Students upon their arrival at Auburn will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven exercises per week required.

SPECIAL STUDENTS.

Students who are qualified to prosecute the studies of the second class, and those over twenty-one years of age who are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study they may prefer and for which they may be qualified; all other students will be assigned to one of the regular prescribed courses of study, unless otherwise ordered by the Faculty. Regular students who fail to pass satisfactory final examinations in any one study become special students.

They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greater number of studies, and their names are so placed in the catalogue.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical and Natural Sciences with their applications; Agriculture, Mechanics, Astronomy, Mathematics, Engineering, Drawing, English, French, German and Latin Languages, History, Political Economy, Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are three Degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion :

I. COURSE IN CHEMISTRY AND AGRICULTURE.

II. COURSE IN MECHANICS AND ENGINEERING.

III. GENERAL COURSE.

There are also two partial courses, each requiring two years for its completion :

IV. TWO YEARS' COURSE IN AGRICULTURE.

V. TWO YEARS' COURSE IN MECHANIC ARTS.

Course I. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of the sciences that directly relate to civil and mechanical engineering, and is adapted to those who expect to enter the profession of engineering.

Course III. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching, or in some commercial or manufacturing business.

Courses IV. and V. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and take one of the regular degree courses.

Students who complete either of these two year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

Those who have completed the general course in each department of the school of Mechanic Arts, and are qualified, can enter upon a more extended technical course in Mechanical Engineering.

PREPARATORY COURSE IN PHARMACY.

Students who expect to become practical pharmacists can enter upon a special course of Chemistry and Natural History and occupy all their time in the laboratories of these departments, under the immediate direction of the professors. With the excellent facilities offered in the new chemical laboratory, scientific preparation of great value to the practical pharmacist can be obtained.

COURSE IN MINING ENGINEERING.

Students who have received the degree of B. Sc. in Engineering, or who have prosecuted an equivalent course of study, can enter upon a special course of Mining Engineering, which includes the following subjects of study, and will require a residence of one year:

Industrial Chemistry—Assaying, Reduction of Ores, Mineralogy, Economic Geology, Mining Machinery, Drifting, Tunneling, Timbering, Ore Dressing, and the various operations connected with the exploitation of mines.

This course of study will be under the charge of the Professors of Chemistry, Engineering and Natural History.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this College, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work, are given in the following departments:

I—CHEMISTRY.
II—ENGINEERING, FIELD WORK, SURVEYING, ETC.
III—AGRICULTURE.
IV—NATURAL HISTORY.
V—TECHNICAL DRAWING.
VI—MECHANIC ARTS.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FOURTH CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elementary Physiology	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

THIRD CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany, (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture.	3. Agriculture.	3. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'ry.	4. Mechanic Art Lab'ry.	4. Mechanic Art Lab'ry.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture.
4. Natural History (lab'y).	4. Natural History (lab'y).	4. Natural History (lab'y).
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Begins March 1st.

FIRST CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Moral Science.	2. Moral Science.
2. Physics.	2. Astronomy.	2. Astronomy.
4. Natural History.	4. Natural History.	4. Natural History.
2. Agriculture.	2. Agriculture.	2. Agriculture.
2. Agricultural Chemistry	2. Agricultural Chemistry	2. Agricultural Chemistry.
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

II.—COURSE IN MECHANICS AND ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FOURTH CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. El. Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

THIRD CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture (a).	3. Agriculture (a).	3. Agriculture (a).
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) For Agriculture may be substituted French or work in the Chemical Laboratory.

SECOND CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English or French.	3. English or French.	3. English or French.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
4. Lab'y, Mineralogy.	4. Lab'y, Mineralogy.	6. Field Work, Engin'g.
4. Field Work, Engin'g.	4. Field Work, Engin'g.	3. Military Drill.
3. Military Drill.	3. Military Drill.	

FIRST CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature (b).	2. Political Economy (b).	2. Political Economy (b).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Natural History.	2. Natural History.	2. Natural History.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
Field Work, Engin'g.	Field Work, Engin'g.	Field Work, Engin'g.

(b) For Eng. Lit. and Pol. Econ. may be substituted French or German.

III.—GENERAL COURSE.

The numerals opposite the subjects indicate the number of hours per week.

FOURTH CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	2. History.
5. Latin.	5. Latin.	4. Latin.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

THIRD CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
2. History.	2. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. Latin.	3. Latin.	3. Latin.
2. German.	2. German.	2. German.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Laboratory Work (a).	6. Laboratory Work (a).	6. Laboratory Work (a).
3. Military Drill.	3. Military Drill.	3. Military Drill.

FIRST CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Moral Science.	2. Moral Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Natural History.	2. Natural History.	2. Natural History.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1, Military Science.	1. Military Science.	1. Military Science.
English Thesis.	English Thesis.	English Thesis.

(a) The student may elect the Laboratory of Chemistry, Natural History or Mechanic Arts.

IV.—TWO YEARS' COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elementary Physiology	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

V.—TWO YEARS' COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elementary Physiology	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
5. Agriculture.	5. Agriculture.	5. Agriculture.
12. Practical Agriculture.	12. Practical Agriculture.	12. Practical Agriculture
3. Military Drill.	3. Military Drill.	3. Military Drill.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with Elementary Rational Mechanics, treated graphically.

This is followed by a full discussion of Molecular Mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the second class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the first class include Electricity and its applications; Optics, Astronomy and Meteorology.

TEXT-BOOKS.—In Physics, Atkinson's Ganot. In Astronomy, White and Young.

MATHEMATICS.

PROF. SMITH.

The general course for the first two years embraces the first year, Algebra and Geometry, six books; second year, Solid Geometry, Plane and Spherical Trigonometry, Surveying, Mensuration.

Two objects are sought to be attained: First, mental discipline. Second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given in the third class in farm, town and government land surveying, dividing land; mapping, plotting and computing of areas, etc.; also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied Mathematics of the Mechanical and Engineering course. Analytical Geometry, Descriptive Geometry and Calculus are pursued in the Engineering course. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of principles and formulæ.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Schuyler's Surveying, Wentworth's Analytical Geometry, Waldo's Descriptive Geometry, Taylor's Calculus, Olney's and Wentworth's Trigonometry.

NATURAL HISTORY AND GEOLOGY.

PROF. MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields, and other natural deposits of mineral in the State. The origin of ore deposits, mineral springs, and geological relations of soils are carefully studied.

There is also a course of advanced work in practical Geology for the post-graduate students. This subject is pursued by applicants for degrees of Master of Science and Mining Engineering.

The second class in Engineering spend two terms in Mineralogy and blow-pipe work.

Botany.—The students of the third class begin the study of Botany the first of March and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the neighboring fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section. All students of the third class are required to study Botany.

In the second class, in the course of Chemistry and Agriculture, an amount of time is devoted to systematic and structural Botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure; this work is not only sufficient to familiarize the students with the methods of plant building and cellular organization, but also to practise them in detecting the various forms of fungi that are injurious to fruits and vegetables. Excellent microscopes of the most improved patterns, and all the necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students. A dark room is attached to this laboratory for micro-photographic work.

TEXT-BOOKS.

Le Conte's Geology, Bessey's Botany, Apgar's Plant Analysis, Gray's Botany, Plant Dissection (Arthur, Barns and Coulter.)

ALABAMA WEATHER SERVICE.

The United States Signal Service has established in Alabama a State system for collecting meteorological data relating to climatic changes. The service is now in successful operation with the central office located at this Institute. Bulletins are issued at the close of each month, compiled from reports sent the Director from numerous stations scattered thoughout the State. An opportunity is thus offered the students in Meteorology of becoming familiar with the system so long successfully operated by the Department at Washington.

CIVIL ENGINEERING AND DRAWING.

PROFESSOR LANE.

CIVIL ENGINEERING.

The special studies of this department begin in the second class, and require a good knowledge of Algebra, Geometry, Trigonometry and Analytical Mechanics. They are as follows:

Second Class.—Simple, compound, reversed and parabolic curves, turnouts and crossings, leveling, gradients, setting slope stakes, location and construction of common roads and railroads.

First Class.—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of the same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds; their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction; location and construction of railroads; navigable, irrigation and drainage canals; river and sea-coast improvements. Theory and practice are combined in both classes.

TEXT-BOOKS.

Second Class.—Henck's Field Book for Railway Engineers, Gillespie's Roads and Railroads, Parson's Track.

First Class.—Wheeler's Civil Engineering, Von Ott's Graphic Statics.

DRAWING.

All of the students of the third and fourth classes are required to take Drawing; but only the students in Mechanics and Engineering in the first and second classes.

The fourth class is taught linear and free-hand drawing.

The third class is instructed in the principles of orthographic and isometric projections, shades and shadows, practical perspective and tinting. In the second class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and shadows and tinting; also sketches of tools and machines, plans, elevations and cross-sections of buildings and blue prints. The first class makes topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Fourth Class.—Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Third Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Second Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

First Class.—French, English and American Plates belonging to the College, Keuffell & Esser's Alphabet.

AGRICULTURE.

PROF. NEWMAN.

The course of instruction in this department embraces, I. soils · II. plants ; III. domestic animals. In the fourth class twenty lectures, covering the third term of the session, treat of soils, their classification, physical defects and remedies, causes of diminished fertility, and the means used to protect them from waste and restore fertility, the theory and practice of surface and sub-drainage, etc. The subject is treated with special reference to the different classes of soil in Alabama, omitting as far as possible questions involving a knowledge of Chemistry and Botany—subjects not taught in the fourth class.

In the third class, in addition to the discussion of the physical properties and mechanical treatment of soils, the methods of studying their chemical defects and their remedies are discussed. The sources of the important elements of plant food, and their use upon different soils and plants, the restoration of humus, saving home manures, composts, commercial fertilizers, the office of different chemical elements in plant development—the relations of plant growth to soil and atmosphere, the theory and practice of restoration of crops, terracing and grading to prevent washing, plows and plowing—indeed everything connected with tilling the soil passes under review as foundation work.

Southern agriculture is then treated in the concrete—the history, nature and cultivation of each of our field crops discussed as regards their adaptation to and treatment upon the soils of Alabama. This occupies the first and second terms. The third term is devoted to domestic and commercial horticulture, poultry, sheep, cattle-breeding and management of the dairy, etc. In the second class stock-breeding and management is completed, and a thorough course in pomology, including the propagation of nursery stock, planting, manuring, pruning, cultivating, harvesting and marketing every species of fruit, treated theoretically and practically, occupies the remainder of the session. Barry's Fruit Garden, corrected for our latitude, is used in this class. In the senior class a series of lectures is delivered upon political economy in its special relations to the pursuit of agriculture, and the relations of capital and labor devoted to agriculture; the selection, purchase, equipment and management of a farm, the ratio between fixed and working capital, the employment and management of labor, etc., etc. The science of cattle feeding occupies the second term, and landscape gardening, treated with special reference to the improvement of country homes, occupies the remainder of the session.

CHEMISTRY.

PROF. LUPTON. ASSISTANT, L. W. WILKINSON.

Instruction in this department embraces—

1. A course of lectures in General Chemistry.

2. A course of lectures in Industrial Chemistry.

3. A course of lectures in Agricultural Chemistry.

4. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in General Chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of Chemical Philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of Organic Chemistry. In this course the more common applications of Chemistry to the Arts and Manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and most approved instruments necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cook's Chemical Philosophy, Chemical Journals.

2. The lectures on Industrial Chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of Chemistry in the Arts and Manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, heating, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufacturing products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy.

3. Course in Agricultural Chemistry: This consists of lectures on Chemistry in its applications to Agriculture (two per week) and includes a thorough discussion of the

origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock and the various operations carried on by the intelligent and successful agriculturist.

BOOKS OF REFERENCE.

Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation with Chemistry, Scientific Journals, Reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign Agricultural Departments and Stations.

4. The Course of Systematic Laboratory Work: This course of practical work in the Laboratory is carried on in connection with each course of lectures, and embraces the practical operation of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The Laboratories, which are open from 9 a. m. to 5 p. m. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the Chemical Laboratory is furnished with a work-table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis. At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from the deposit.

BOOKS USED.

In Qualitative Analysis—Jones, Fresenius, Plattner.

In Quantitative Analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In Agricultural Chemical Analysis—Church, Frankland. Official methods of the Association of Agricultural Chemists.

CHEMICAL LABORATORY.

(For description of the building, see page 11.)

The Chemical Apparatus recently purchased for the new laboratory consists of a full supply of the latest and most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class Laboratories, a new and improved Schmidt and Hænsch's Polariscope has been imported, two short-arm Becker Balances of latest pattern, Bunsen Spectroscope, Zeiss' Microscope, and other instruments for delicate and accurate work.

ENGLISH AND LATIN.

PROF. THACH.

ENGLISH.

In this department the students are carried through a systematic course of study in the English Language and literature. In the courses of study which do not include the ancient classics, a full course in English is especially important. It is therefore designed, as much as the time allotted permits, to familiarize these students by frequent exercises with the standard authors of the language.

The course of study is as follows:

Fourth Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied.

Whitney's Essentials, Lockwood's Lessons in Rhetoric.

Third Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on literary and historic themes.

Genung's Rhetoric, Scudder's American Poems, Abbott's How to Write Clearly. Weekly exercises in declamation are required of this class.

Second Class.—Three hours a week; critical study of English Classics, History of English and American Literature, Logic, Essays.

Shaws's History of English Literature, Abbott's English Lessons, Hale's Longer English Poems.

First Class.—Two hours a week, first term. Principles of criticism and study of English Classics; second and third terms, Political Economy. Two hours a week, first and second terms, Mental Science; third term, Moral Science.

Shakespeare's Plays, Chaucer's Canterbury Tales, Wayland's Science of Wealth, Hickok's Mental Science, Gregory's Christian Ethics.

Three original orations are required during the year of each student in the first and second classes.

LATIN.

The subjects taught in this department are the Latin Language and Literature.

The modes of instruction are by translation from the Latin texts into English and from English into Latin. The constant use of black-boards adds much to the progress and accuracy of the student.

A systematic course of exercises, illustrative of the principles of Latin etymology and syntax, is carried on in connection with the reading of the authors prescribed. Special attention is given to English derivatives from the Latin, and to the corresponding idioms of the two languages.

The progress of the student is valued not so much by the number of books read, as by his ability to read Latin and explain the principles of interpretation and construction.

Latin authors read:

Fourth Class.—Virgil, Cicero's Orations, Grammar and Composition.

Third Class.—Cicero, Composition.

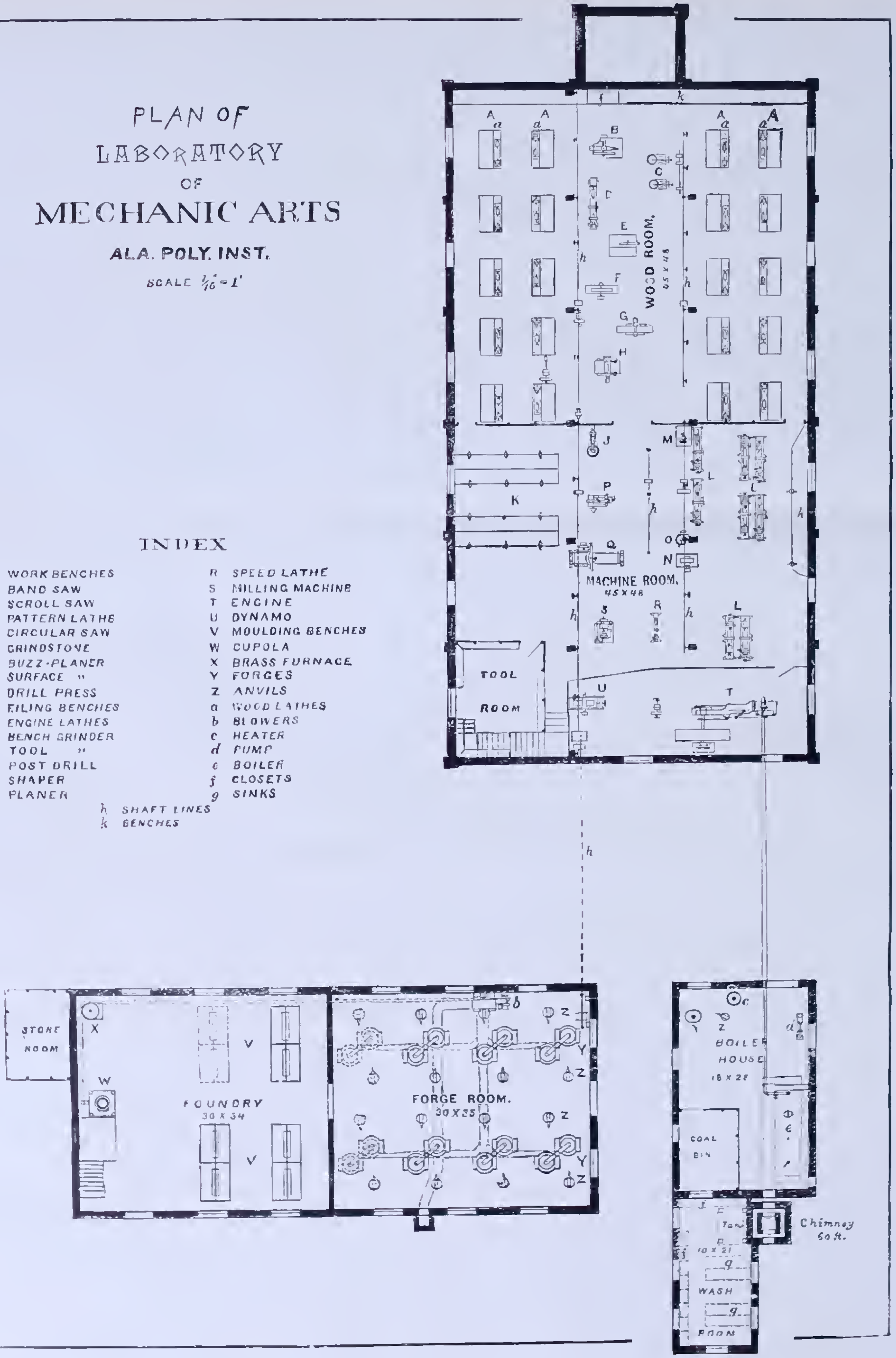
Second Class.—Tacitus, Horace, Selections from Latin poets and Prose writers, Classical Literature.

First Class.—Cicero's Tusculan Disputations, Terence, History of Latin Literature.

PLAN OF LABORATORY OF MECHANIC ARTS

ALA. POLY. INST.

SCALE 1/16" = 1'



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MECHANIC ART.

G. H. BRYANT, B. S., INSTRUCTOR.

J. J. WILMORE, B. A. BLAKEY, ASSISTANTS.

The course in Manual Training covers three years, as follows: First year, wood-working—carpentry and turning; second year, pattern-making and foundry and forge work—moulding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes (5th, 4th and 3d). For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse-power Harris–Corliss automatic engine, which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 20 double wood-working benches, each with complete set of carpenter's tools; 20 turning-laths, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 buzz planer; 2 scroll saws (power); 1 large pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. In addition to these, the tool-room is supplied with a variety of extra hand-tools for special work.

The equipment for the foundry consists of moulding-benches for 12 students, each supplied with a complete set of moulder's tools; a 14-inch cupola, with all modern improvements, capable of melting 1,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small moulding flasks, special tools, etc.

The forge shop equipment consists of 12 hand-forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine tools in the machine department are as follows: 6 engine-lathes (screw-cutting) 14-inch swing, 6-foot bed; 2 engine-lathes 16-inch swing (one with taper attachment); 1 speed lathe, 10-inch swing; 1 20-inch drill-press (power feed); 1 15-inch shaper; 1 22-inch x 22-inch x 5-foot friction planer; 1 universal milling machine; 1 corundum tool-grinder (14-inch wheel); 1 bench grinding-machine (small); 1 post drill press (14-inch). A part of this room is set apart for vise-work—chipping and filing—and benches for 12 students are provided, each with vise and sets of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill-chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, etc.

The nature of the work in each department is as follows:

1ST YEAR.

I. A course of carpentry (hand work covering the first term and part of the second, or about five months.)

The lessons include instruction on the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, etc., different kinds of joints—timber-splices, cross joints, mortice and tenon, mitre and frame work, dovetail work comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning extending through the three months of the third term. The lessons comprise, first, nature and use of lathe and tools, plain straight turning, caliper work to different diameters and lengths, simple and compound curves, screw-plate and chuck-work; hollow and spherical turning.

2D YEAR.

I. A course in pattern-making, covering the first half of the first term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general moulding.

II. A course in moulding and casting in iron and brass occupying ten weeks. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two-part flasks; core work is also given, and some three-part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola, each student in turn taking charge of a melting.

III. A course in forge work in iron and steel occupying the remainder of the year. The lessons are arranged so that the students, in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

3D YEAR.

I. A course in chipping and filing covering the first term. The lessons comprise work on cast and wrought iron: Chipping to line on flat and curved surfaces, key-seating, etc.; filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sliding and tight fits, sawing, pin, screw and key filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass: Turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals: Such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

Instruction is generally given, first, by black-board drawings or sketches which the student copies, with dimensions in note-book, with which each one provides himself; thus each one works from his own notes. This is supplemented, whenever necessary, by the actual construction of the lesson by the instructor before the class; second by inspection and direction at the bench by the instructor.

Students desiring to pursue the study of applied mechanics beyond the above course will take a special course of Steam and Mill Engineering, supplemented by experiment and practice with the apparatus, including steam generation and the forms, construction and use of steam-boilers and accompanying apparatus; steam as a motive power, and forms, construction and use of the steam engine, with the study and use of the indicator; transmission of power—shafting, belting, gearing, etc.; also elementary theoretical mechanism.

MODERN LANGUAGES AND HISTORY.

GEORGE PETRIE, ADJUNCT PROFESSOR.

MODERN LANGUAGES.

The following regular courses are given in French and German:

French.—First year: Three recitations a week. During this year the principal object is to acquire facility in reading ordinary French at sight; and to this end, the student starts reading at an early stage and is practiced continually in sight reading and in previously assigned selections.

Second year: Three recitations a week. During this year more difficult and varied French is read, and careful instruction is given upon the laws of grammar and the construction of the language, while the principles thus learned are illustrated and impressed by frequent exercises in rendering English into French.

German.—Two years: Two recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in the French.

Special Courses.—In addition to these regular courses, additional classes are formed for special study of the literature, or for special study in any particular direction desired, when the number of students desiring it is sufficient.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that History is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. This causal relation of events is closely studied and the students are taught to investigate for themselves the growth of ideas, and to trace particularly their development in the United States, so as to acquire a practical knowledge of the history and present working of our government and institutions. The knowledge acquired is rendered clear and permanent by frequent comparisons of customs and laws, and also by diagrams, charts and maps. Instruction is given by lectures and text-books, while investigation is stimulated by requiring essays and by holding frequent discussions in the class-room.

The course covers one year and a part of the next, and embraces the history of the United States, studies on our government and its institutions and on general history.

MILITARY SCIENCE AND TACTICS.

LIEUT. J. B. McDONALD, U. S. ARMY, COMMANDANT.

Military Science and Tactics are required to be taught in this institution by law. This law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the School of the Soldier, of the Company and of the Battalion; also in Guard Mountings, Inspections, Dress Parades, Reviews, etc.

Under Section 1225 U. S. Revised Statutes, the College is provided with modern Cadet rifles and accoutrements and two pieces of field artillery. Ammunition for practice firing is used under the direction of an experienced officer.

The following uniform of standard Cadet gray cloth has been prescribed for dress, viz: Coats and pants as worn at West Point, with sack coat for fatigue, dark blue Cadet cap.

A very neat and serviceable uniform can be obtained here at $18. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The drills are short and the military duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the Cadet are manifest.

The entire body of students is divided into companies. The officers are selected for proficiency in drill, deportment and studies. Each company is officered by one Captain, two 1st Lieutenants, one 2d Lieutenant, and with a proper number of Sergeants and Corporals. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are conferred by the President on nomination of the Commandant.

Privates of the first class may be excused by the Faculty from all military drill.

The first and second classes recite once a week in Military Tactics.

POST-GRADUATE DEGREES.

There are three Post-Graduate Degrees—MASTER OF SCIENCE, MINING ENGINEER and CIVIL ENGINEER.

A Post-Graduate Degree may be obtained by a graduate of this College, or of any other institution of equal grade, by one year's residence at the College, spent in the successful prosecution of a course of study in applied science prescribed by the Faculty.

Candidates must also present to the Faculty a satisfactory thesis, showing independent investigation upon some subject pertaining to their course of study, and must pass a satisfactory examination on the course of study prescribed. The examination is written and oral in presence of the Faculty.

Applicants for Post-Graduate Degree are by order of the Board, permitted to matriculate without payment of fees, except laboratory fees for those who work in the chemical laboratory.

They are subject to the general regulations as other students, but exempt from all military duty.

Resident graduates, who are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College, except chemical laboratory, without payment of regular fees.

DISTINCTIONS.

Distinctions will be awarded in the different subjects of each class to those students whose grade for the entire year is above 90 per cent., and who have satisfactorily passed all the regular examinations of that session.

Certificates of Distinction are awarded in public on Commencement day to those who obtain three Distinctions. For the first class four Distinctions are required.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction. in a form adapted to permanent preservation.

From the record a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written recitations, or monthly examinations on the studies of the month, are held at the option of the professor.

At the end of each term written or oral examinations, or both, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examination, can be promoted to full standing to the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within six weeks of the examination, except in extreme cases.

Examinations for degrees or certificates of proficiency embrace the entire subject of study in the course.

LIBRARY.

A temporary room is appropriated to the Library until the completion of the College building, but the number of books at present is not large. Additions are made annually.

The Library is open at stated times, when students are permitted to select books according to regulations prescribed by the Faculty.

DISCIPLINE.

The government of the College is administered by the President and Faculty in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study, and punctuality in attendance on recitations and all other duties, is required of every student.

Students are not allowed to have in their possession weapons or arms not issued for the performance of military duty.

RELIGIOUS SERVICE.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized, and through its weekly meetings, exerts a wholesome Christian influence among the students of the College.

The following students are the officers of the Association:

G. S. Clark, President.
W. G. Harrison, Vice-President.
J. F. Wilkinson, Recording Secretary.
J. W. Bivins, Corresponding Secretary.
H. M. Taylor, Treasurer.

LOCATION.

The College is situated in the town of Auburn, sixty miles east of Montgomery, directly on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and entire freedom from malaria, having an elevation of eight hundred and twenty-one feet above tide-water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

THESIS.

Each applicant for a reular degree is required to write and submit to the Faculty a thesis on a subject of immediate relation to some study of his course, and deliver the same at Commencement, if required by the Faculty.

This thesis must be given to the professor of English by the first day of May.

LITERARY SOCIETY.

There are two Literary Societies—the Wirt and Websterian—connected with the College.

These Societies hold celebrations on the evenings of Thanksgiving Day and the 22d of February, and also Commencement week. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in presence of the faculty and students.

The *first and second terms* the students of the third class are exercised in declamation.

The *second term* the members of the second class deliver original orations.

The *third term* the members of the first class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The Annual Alumni Oration, by a member of the Society, is delivered in the chapel during Commencement week. The following are the officers of the Society:

T. H. Frazer, M. D., President.

J. C. Street, Vice-President.

C. C. Thach, Treasurer and Secretary.

The Alumni Oration will be delivered next Commencement by J. E. D. Shipp, of Georgia.

BOARDING.

The College has no barracks or dormitories, and the students board with the families of the town of Auburn, and thus enjoy all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after the "call to quarters," or are guilty of any violation of order.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President.

EXPENSES.

Incidental fee, per half session	$2 50

Library fee, per half session	$1 00
Surgeon's fee, per half session	2 50
Board per month, with fuel and lights	$12 to 14 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Board no fees can be remitted.

There is no charge for tuition.

The surgeon is required to visit daily the cadets reported sick, and to give all requisite medical attendance without other charge than the regular surgeon's fee.

By messing the cost of board has been reduced by a few students to $8.50 per month. For students entering after January 1st, the fees for half session only are required.

CONTINGENT FEE.

A contingent fee of five dollars is required, to be deposited by each student on matriculation, to cover any special or general damages to College property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, will be refunded to the student.

AMOUNT OF DEPOSIT.

Each student on entering College should deposit with the Treasurer not less than $50.00 to pay the expenses of fees, one month's board, uniform, books, etc.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of College fees and board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necesssary expenses. These checks are paid only when approved by the President. This approval is given only for necessary expenses, as stated in the catalogue, unless specially requested in writing by the parent.

The attention of parents is called to the following law enacted by the Trustees:

> When a student matriculates, all money required to pay the College fees, and all other moneys in his possession, must be deposited with the Treasurer, unless the President shall receive special instruction from the parent or guardian to the contrary.

ACADEMIC YEAR.

The Academic Year commences on Wednesday, 11th September, (second Wednesday after first Monday) and ends on the second Wednesday after the first Monday in June following, 11th, which is Commencement day.

It is divided into three terms. The first term extends from the opening of the session to the last week in December; the second term begins January 1st and ends March 29th; the third term continues from March 31st to the close of the session.

RESOLUTION OF THE TRUSTEES.

The following resolution was adopted by the Trustees:

> That in view of increased facilities for instruction in Agriculture and the technical departments of education now possessed by this College, especially in the department of Mechanic Arts, made possible by the recent donation from the State, the Faculty are authorized, in addition to the legal name of this College, to print on the catalogue the words ALABAMA POLYTECHNIC INSTITUTE, as significant of the expanded system of practical instruction in industrial science in the course of education now provided for.

DONATIONS TO MUSEUM.

Valuable contributions have been made to the museum by the following persons:

Mr. Albert Strassberger, of Montgomery, Alabama, a large collection of minerals, woods and manufactured products, representing the natural resources of Alabama.

Messrs. Kaldenberg & Co., of New York, beautiful polished specimens of amber containing fossil insects, and a fine piece of ivory representing cross section of a tusk.

Dr. Remus Persons, of the United States Navy, valuable collections of crystalized minerals from the neigborhood of Hot Springs, Arkansas, bitumen, infusorial earth and well preserved specimens of reptiles and other animals.

Dr. Charles Mohr, of Mobile, Alabama, several hundred specimens of woods, representing a large number of species of Alabama growth.

Mr. James Clayton, of Auburn, also a fine collection of Alabama woods.

The Smithsonian Institute, 225 species of the lower forms of invertebrates prepared for class study.

United States Department of Agriculture, a fine collection of well pressed and mounted grasses and other plants from different quarters of the United States.

Mr. James Postell, of St. Simon's Island, Georgia, has donated to the museum his excellent collection of shells and fossils representing about 1,000 species. This collection has not yet been received, but it will be shipped as soon as the cases are ready to preserve the specimens.

Small donations have been received from the following persons:

Mr. J. H. Dunstan, of Virginia, gold ores and jasper from South America.

Mr. W. D. Taylor, of Birmingham.

Rev. P. C. Morton, of Tuskegee.

Mr. Fontaine Broun, of West Virginia.

Dr. George D. Norris, of New Market, Alabama.

Mr. V. M. Fleming, of Virginia.

Mr. Howard Lamar, of Atlanta, Georgia.

A number of the students now in the institution have contributed specimens.

DONATIONS TO LIBRARY.

Secretary of the Interior, Census of 1880, Report of Chief of Engineers, Coast and Geodetic Survey, Education, etc., 64 vols.

Hon. Jno. T. Morgan, Public Document, 6 vols.

Hon. James L. Pugh, Public Document, 8 vols.

Hon. W. C. Oates, War of the Rebellion, Congressional Record, etc., 8 vols.

Hon. N. H. R. Dawson, Reports on Education, Pamphlets, etc., 9 vols.

CALENDAR, 1889-90.

Session begins	Wednesday, Sept. 11, 1889.
Examination for admission	Wednesday, Sept. 11, 1889.
First term begins	Wednesday, Sept. 11, 1889.
First term ends	Saturday, Dec. 21, 1889.
Second term begins	Wednesday, Jan. 1, 1890.
Second term ends	Saturday, March 29, 1890.
Third term begins	Monday, March 31, 1890.
Third class exercises	Thursday, May 1, 1890.
Final examinations begin	Monday, May 19, 1890.
Commencement sermon	Sunday, June 8, 1890.
Annual meeting of trustees	Monday, June 9, 1890.
Celebration of Literary societies, 8 p. m.	Monday, June 9, 1890.
Second class celebration	Tuesday, June 10, 1890.
Alumni oration	Tuesday, June 10, 1890.
Address before Literary societies	8 p. m., Tuesday. [June 10, 1890.
Commencement day	Wednesday, June 11, 1890.

Agricultural Experiment Station

— OF —

AGRICULTURAL AND MECHANICAL COLLEGE OF ALABAMA.

Agricultural Experiment Station.

BOARD OF VISITORS.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION:

Hon. J. G. Gilchrist,
Hon. R. F. Ligon,
Hon. J. B. Mitchell.

BOARD OF DIRECTION—Officers of the Station:

W. L. Broun	President.
J. S. Newman	Director and Agriculturist.
N. T. Lupton	Vice-Director and Chemist.
†P. H. Mell	Botanist.
———	Biologist.

ASSISTANTS:

Isaac Ross, First Asssistant Agriculturist in charge of Live Stock and Dairy.

James Clayton	Second Assistant Agriculturist.
J. T. Anderson, Ph. D.	First Assistant Chemist.
L. W. Wilkinson, M. Sc.	Second Assistant Chemist.
P. L. Hutchinson	Third Assistant Chemist.
T. D. Samford, B. Sc.	Assistant Botanist.

†Prof. Mell has also charge of Meteorological Observations.

THE HATCH ACT.

An Act to establish agricultural experiment stations in connection with the colleges established in the several States, under the provisions of an act approved July second, eighteen hundred and sixty-two, and of the acts supplementary thereto.

Be it enacted in the Senate and House of Representatives of the United States of America in Congress assembled, That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of the college or colleges or agricultural department of colleges in each State or Territory established, or which may hereafter be established, in accordance with the provisions of an act approved July second, eighteen hundred and sixty-two, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "agricultural experiment station:" *Provided,* that in any State or Territory in which two such colleges have been or may be so established, the appropriation hereinafter made to such States or Territory shall be equally divided between such colleges, unless the Legislature of such State or Territory shall otherwise direct,

SEC. 2. That it shall be the object and duty of said experiment stations to conduct original researches, or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops, the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaption and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiements bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories.

Sec. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate from time to time, such lines of inquiry as to him shall seem most important; and, in general, to furnish such advice and assistance as will best promote the purposes of this act. It shall be the duty of each of said stations, annually, on or before the first day of Feburary, to make to the governor of the State or Territory in which it is located a full and detailed report of its operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the said Commissioner of Agriculture, and to the Secretary of the Treasury of the United States.

Sec. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the States and Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins or reports and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster General may from time to time prescribe.

Sec. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results as hereinbefore prescribed, the sum of fifteen thousand dollars per annum is hereby appropriated to each State, to be specially provided for by Congress in the appropriations from year to year, and to each Territory entitled under the provisions of section eight of this act, out of any money in the Treasury proceeding from the sales of public lands, to be paid in equal quarterly payments, on the first day of January, April, July and October in each year, to the treasurer or other officer duly appointed by the governing boards of said colleges to receive the same, the first payment to be made on the first day of October, eighteen hundred and eighty-seven: *Provided, however*, That out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such station; and thereafter an amount not exceeding five per centum of such annual appropriation may be so expended,

SEC. 6. That whenever it shall appear to the Secretary of the Treasury from the annual statement of receipts and expenditures of any of said stations, that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such station, in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7. That nothing in this act shall be construed to impair or modify the legal relation existing between any of the said colleges and the government of the States or Territories in which they are respectively located.

SEC. 8. That in States having colleges entitled under this section to the benefits of this act, and having also agricultural experiment stations established by law separate from said colleges, such States shall be authorized to apply such benefits to experiments at stations so established by such States; and in case any State shall have established, under the provisions of said act of July second aforesaid, an agricultural department or experimental station. in connection with any university, college or institution not distinctly an agricultural college or school, and such State shall have established or shall hereafter establish a separate agricultural college or school, which shall have connected therewith an experimental farm or station, the Legislature of such State may apply in whole or in part the appropriation by this act made, to such separate agricultural college or school, and no Legislature shall by contract express or implied disable itself from so doing.

SEC. 9. That the grants of money authorized by this act are made subject to the legislative assent of the several States and Territories to the purposes of said grants: *Provided*, That payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its Legislature, meeting next after the passage of this act, shall be made upon the assent of the Governor thereof duly certified to the Secretary of the Treasury.

SEC. 10. Nothing in this act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all the States or institutions mentioned in this act, but Congress may at any time amend, suspend, or repeal any or all the provisions of this act.

Approved, March 2, 1887.

ORGANIZATION OF THE ALABAMA AGRICULTURAL EXPERIMENT STATION.

The Board of Trustees of the Agricultural and Mechanical College, met in Montgomery February 24 and 25, 1888, and organized the Agricultural Experiment Station under the provisions of the "Hatch act," as follows:

1. In accordance with the act of Congress, approved March 2d, 1887, to establish experiment stations in the several States, the Governor of this State having given his certified assent to the purposes of the grant, as required in the act, there is hereby established under the provisions of said act, for the purposes therein named, the experiment station of the Agricultural and Mechanical College, of Alabama; and said station is hereby made a department of the Agricultural and Mechanical College, and as such shall, as other departments, be under the general supervision of the president of the college.

2. All money's received from the United States Treasury under the aforesaid act of Congress, shall be faithfully used for the purposes designated in said act.

3. The president of the college shall present in his annual report to the trustees such reconmendations as in his opinion will promote the efficiency of the station; and to him all reports of the several departments of the station shall be made.

4. The president of the college and such other officers attached to the station, as may be appointed by the trustees, shall constitute a board of direction, and to said board all subjects relating to the experiment station shall be referred. And in order to secure unity of purpose in research, the board of direction shall confer together and determine the experimentation and research which shall be undertaken, and adopt each year a definite line of work; it being provided the work undertaken shall, as far as possible, have reference to questions of practical interest to the farmers of Alabama. The board shall meet at regular periods, and at any time subject to the call of the president and shall keep a record of its proceedings.

5. A member of the board of Direction shall be appointed by the trustee officer in charge; who in addition to the special duties of the station to which he may be assigned, shall conduct the general correspondence incidental to the work of the station.

6. It shall be the duty of the station to examine free of charge articles relating to agriculture, sent by citizens of the State, when of

public utility, under such regulations as may be prescribed, and to perform all duties now required of the experiment station established at the college by the trustees under the law of the State.

7. No officer of the station shall engage in any occupation, or accept any position that will in any manner interfere with the faithful performance of his duties; and no property of any character belonging to the experiment station shall be used for private purposes.

8. All proceeds arising from sales from the proceeds of the farm shall be paid to the Treasurer of the College, who shall account for the same to the trustees; and when the Director receives any money from farm products, he shall make an itemized statement in writing from what source such money is received, which statement shall, with the money, be turned over to the Treasurer, and no money shall be paid to the Director unless upon warrant signed by the President of the College.

9. A committee of visitors composed of three trustees shall be appointed, who shall during the year, as often as they may deem necessary, visit and inspect each department of the experiment Station, and make a special report at the annual meeting of the Board, and no permanent improvement shall be constructed without the approval of the committee.

10. The organization of the experiment station herein provided for shall take effect April 1st, 1888, and continue so long as the act of Congress remains in force; and the Agricultural and Mechanical College receives the money therein appropriated.

ASSENT OF THE STATE LEGISLATURE.

Joint Resolutions of the State Legislature to Give Assent to the Purposes of the Grant made, by the Act of Congress, to Establish Agricultural Experiment Stations in Connection with the Land Grant Colleges.

WHEREAS, The Congress of the United States having passed an act, approved March 2, 1887, entitled, "An act to establish Agricultural Experiment Stations in connection with the colleges established in the several States under the provisions of an act approved July 2, 1862, and of the act supplementary thereto," and

WHEREAS, It being provided in said act "That the grants of moneys authorized by this acts are made subject to the legislative assent of the several States and Territories, to the purposes of said grants"; therefore be it

"*Resolved*, By the House of Representatives, the Senate concurring, That the assent of the General Assembly of Alabama is hereby given to the purposes of the grants made in said act of Congress; and that the trustees of the Agricultural College of Alabama, at Auburn, are hereby authorized and directed to comply with the terms and conditions expressed in the act aforesaid."

Approved February 27th, 1889.

The following is from the act of Congress, making the appropriation for the Agricultural Experimental Station for the fiscal year ending June, 1890, and for other purposes.

The section making the appropriation has this *proviso:*

"*Provided*, That as far as practicable, all such stations shall devote a portion of their work to the examination and classification of the soils of their respective States and Territories, with a view to securing more extended knowledge and better development of their agricultural capabilities."

Approved March 2, 1889.

EQUIPMENT AND WORK OF THE STATION.

DEPARTMENT OF AGRICULTURE.

The Agricultural Department of the Experiment Station was organized under State law in July, 1883, and hence there was much work already in progress when it was merged into the Station organized under the Congressional act known as the "Hatch Bill," April 1st, 1888. Its equipment has been very much improved through the Congressional appropriation and its sphere of operation extended. The farm of 226 acres, occupied by the Station under State law, and owned by the State is used by the Station under the present organization. When purchased in 1883 it was in a very dilapidated condition; much of the land having been turned out in the commons, and a large portion washed into gulleys.

THE PERMANENT IMPROVEMENTS

are a dwelling of seven rooms, occupied by the Director; a four room cottage, occupied by the Foreman; a neat, new cottage containing offices for the Director and his assistants, and a museum and preparation room; a substantial two-story barn; a two story gin house, with sides and top covered with corrugated iron; a silo, dairy and ice-house; large cow stable; engine and boiler house; corn-crib, tool rooms, etc.

The water supply for the green-house and horticultural grounds are furnished by two hydraulic rams which utilize the waste from two fish ponds.

THE EQUIPMENT

consists of a twenty-horse power boiler and fifteen-horse power engine, the latter placed between the barn and gin-house so as to drive with equal facility a line of shafting upon each building.

A forty-saw Pratt gin, with feeder and condenser attached, and a power press, are in position in the gin-house, and afford the means of accurate experimentation with cotton.

A feed mill and cotton-seed crusher has been provided for grinding food for stock, and crushing the green cotton-seed for the purpose of more satisfactorily experimenting with them, both as stock food and as a fertilizer.

A Ross ensilage cutter serves the purpose of cutting ensilage for filling the silo during the summer and dried hay in winter.

A complete grain separator is stationed by the gin-house and is operated by the same shafting that runs the gin and cotton press. A mower, horse-rake and cutaway harrow have been added to the outfit for field work.

Miss Clementine Snow, of Oxford, Alabama, has presented the Station with a sulky plow and cultivator, a rotary-tooth harrow, feed-cutter, etc., thus supplementing with most useful implements the purchased outfit.

A complete dairy equipment has been purchased, including the Cooly creamery and the De Laval separator, and the cow stable has twelve thoroughbred Jerseys.

The pig sties are supplied with thoroughbred Essex and cross-bred Berkshire pigs, and feeding experiments are made to test the comparative value and economy of different Southern field products as pork producers.

The horticultural department has been rapidly developed. A large number of varieties of apples, pears, peaches, plumbs, figs, grapes, strawberries and raspberries are undergoing experimental test as to their comparative productiveness and adaption to this soil and climate. These undergo the most critical observation as to habits of growth, healthfulness, productiveness, character and quality of fruit and liability of plants and fruit to attack of insects or disease.

IN THE FIELD.

A variety of inquiries have been made as to the fertilizers best suited to supply the needs of the soil for the most profitable growth of our field crops, the choice of the plants as to the sources of supply of nitrogen, potash and phosphoric acid, and especially as to the forms in which the latter is presented. Especial attention has been given to the undergrowth of our cultivated plants and the effects of different methods of cultivation upon the development and consequent productiveness of the plant. By means of water under-pressure the soil has been removed from the roots of corn and cotton plants at different stages of growth and under different systems of cultivation.

Experiments have been conducted with cotton, corn, forage plants, small grain, ground-peas, sweet and Irish potatoes.

The results of all experiments are published in bulletins from time to time, and these distributed for the benefit of the farmers.

The interests of the amateur and the commercial gardener have not been overlooked, but a great variety of experiments have been made with melons and vegetables, involving the expenditure of much time in making the daily observations necessary to collect the facts of most interest to the grower of these perishable products. Especial attention has been given to inquiries as to earliness and productiveness of different varieties.

DEPARTMENT OF CHEMISTRY.

The Chemical Department of the Agricultural Experiment Station, in connection with the Agricultural and Mechanical College of Alabama, includes in its present organization, the Chemist and three assistants.

The new building for the Department of Chemistry is completed in all its arrangements and admirably adapted to meet the growing demand of modern progress in this department of science. In this building, a description of which is given in this catalogue, is located the State Chemical Laboratory where all the chemical works of the Experiment Station are carried on. The greatest care has been taken to secure the very best form of work tables, niches and hoods for carrying off offensive fumes, sinks, gas, water and other conveniences and necessaries for effective work.

The equipment is the very best that can be secured from manufacturers in this country and in Europe. In addition to the apparatus usually found in chemical laboratories and especially where soils, fertilizers, feed stuffs and dairy products are analyzed and their properties and capabilities investigated, may be mentioned, a new Schmidt & Hænsch's Polariscope for sugar determinations, Zeiss' microscope and Refractometer, and a new and special arrangement for carrying on at the same time a number of nitrogen determinations by the Kjeldahl method. The Library of the Experiment Station contains a large number of standard works of reference and is supplied with the principal French, English and German scientific journals.

In addition to the work directly connected with the Station, the Chemist is Professor of General and Agricultural Chemistry in the Agricultural and Mechanical College and Official Chemist of the State Department of Agriculture. On the application of the Commissioner of Agriculture he is required by law to "analyze and certify the analysis of all fertilizers, samples of which are furnished him."

The variety and extent of this work can be seen from the following tabular statement of the number and character of the quantitative analyses made during the year 1888. In the analyses of fertilizers only those constituents have been determined which are required under the State law, viz.: water soluble, citrate soluble, and acid soluble phosphoric acid, nitrogen and potash.

Number and character of quantitative analyses made in the State Chemical Laboratory during the year 1888.

SUBSTANCES ANALYZED.	NUMBER.
Acid Phosphates with Nitrogen and Potash	84
Acid Phosphates with Potash	8
Acid Phosphates	57
Raw bone meal	2
Natural Guanos	18
Phosphatic rocks and deposits	1
Marls and Calcareous rocks	5
Tankage	1
Cotton seed meal	3
Cotton see hull ash	1
Cave earths	3
Kainit and potash salts	8
Feed stuffs	3
Nitrogenous materials	5
Carbonaceous matter, or muck	1
Potatoes	9
Soils and sub-soils	20
Coal	5
Iron ores	2
Clays	4
Waters	1
Gold ores	2
Total	243

In addition to the above, a considerable number of mineralogical specimens, the character of which could be ascertained by simple qualitative tests, were examined and their value determined.

The details of the quantitative work done are to be found in the quarterly bulletins issued during the year.

DEPARTMENT OF BOTANY AND METEOROLOGY.

This department was not organized until the year was about half gone, and little could be done toward collecting plants for study before the early frosts. The assistant, however, was placed in the field as soon as possible, and many of the wild plants of the county, where the college is located, were collected and pressed for future examination. These plants represent species of grasses, weeds and woods.

In the last two quarterly bulletins partial lists of the woods of Alabama were published, with descriptions of some of the most valuable specimens. This work on the woods will be continued from time to time until the entire State is covered. The large number of specimens of grasses and weeds collected since the burning of the college museum have been assorted, and manuscripts have been prepared for publication in future bulletins. Much work has been done toward classifying the noxious weeds of Eastern Alabama, and results of experiments are being collated to show the farmers how to eradicate them from the cultivated fields.

Many experiments under the microscope have been made on twelve varieties of the cotton plant to show the effect produced on the fibre by different methods of cultivation. A number of sections have been made of the plant during its different stages of growth and carefully photographed. Measurements have been made of the fibre and its strength determined.

The Botanical Laboratory of the Experiment Station is now equipped as follows:

One Zeiss Microscope Stand II a,
Objectives: .16, .8, .4, .2 (immersion),
Oculars: 2, 4, 6, 8, 12, 18,
1 micrometer ocular,
Goniometer ocular,
Abbe camera lucida,
1 Zeiss compound dissecting lens,
1 Bausch & Lomb's dissecting microscope,
1 " " Laboratory microtome,
Plant presses,
Solar microscope aud camera,
Dissecting instruments,
Turn tables and mounting material and chemicals.

The work in meteorology has been in successful operation in the State since 1884, but since the organization of the Experiment Station, under the Hatch Act, the facilities for observation at the college station have been considerably enlarged. The following instruments comprise the outfit at the station:

A mercurial barometer by Green, carefully corrected and compared with the standard at Washington.

Maximum and minimum thermometers by Green.

Hygrometer.

Solar radiator.

Terrestrial radiator.

Rain gauge—standard make.

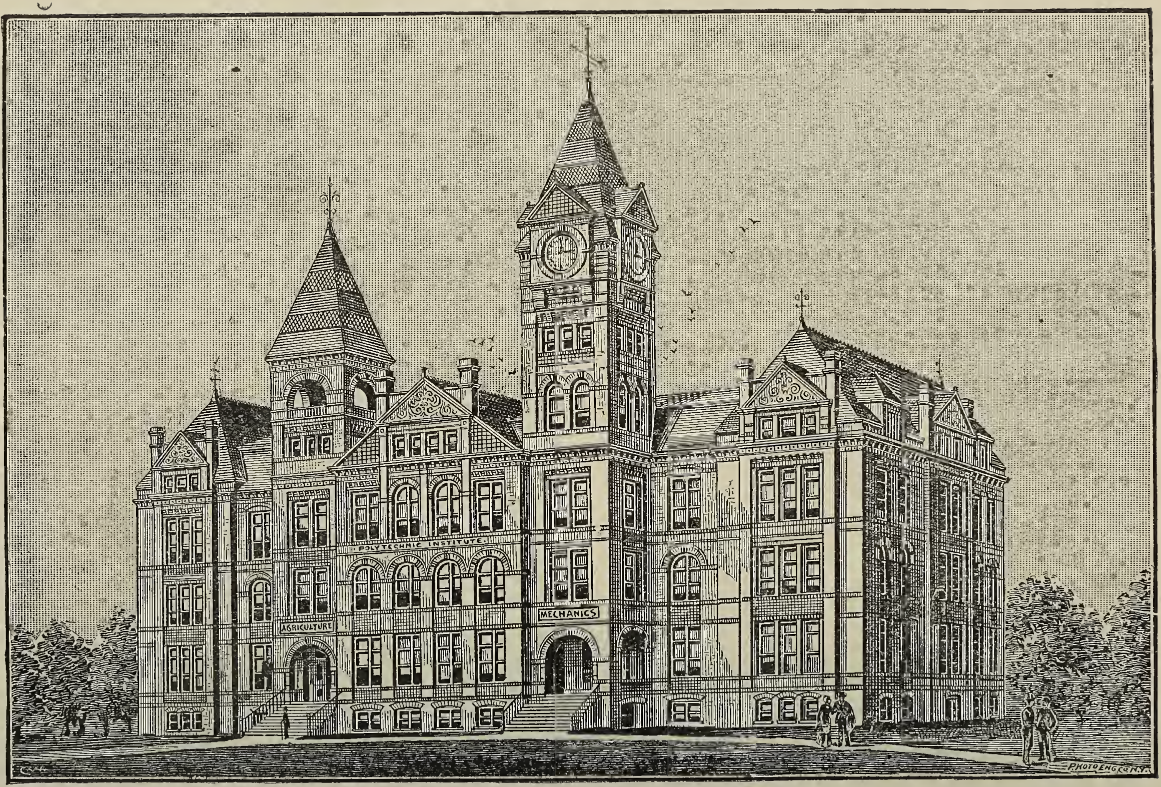
Anemometer with electrical recorder by Gibbon.

Wind vane—signal service pattern.

Three sets of soil thermometers ranging in depth from one inch to ninety-six inches.

The barometer, maximum and minimum thermometers, hygrometer, rain gauge, and wind vane, belong to the United States signal service.

Besides the college station, reports are received from twenty-six observers in different sections of the State, who are supplied, through the the liberality of the Chief Signal Officer, with maximum and minimum thermometers and rain gauges. From the data obtained from these observers regular monthly bulletins have been issued since 1884, and distributed among the farmers of the State. Weekly bulletins, indicating the effects produced upon the crops by the changes of the weather, are issued on every Saturday during the crop season.


POLYTECHNIC INSTITUTE.
AGRICULTURE
MECHANICS
PHOTO.ENG.CO.N.Y.

AGRICULTURAL AND MECHANICAL COLLEGE.

Alabama Polytechnic Institute.

CATALOGUE

—OF THE—

STATE

Agricultural and Mechanical

COLLEGE.

ALABAMA POLYTECHNIC INSTITUTE.

1889-90.

AUBURN, ... ALABAMA.

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C. C. THACH,
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O. D. SMITH,
Corresponding Secretary.

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* Resigned March, 1890.
† Appointed March, 1890.

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OF THE

Agricultural Experiment Station.

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R. F. LIGON,
J. B. MITCHELL.

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J. S. Newman	Director and Agriculturist
N. T. Lupton	Vice Director and Chemist
*P. H. Mell	Botanist
G. F. Atkinson	Biologist

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Jas. Clayton	Second Assistant Agriculturist
J. T. Anderson, Ph. D.	First Assistant Chemist
L. W. Wilkinson, M. Sc.	Second Assistant Chemist
P. L. Hutchinson	Third Assistant Chemist
A. M. Lloyd, B. S.	Assistant Botanist

*Prof. Mell has charge of Meteorological Observations.

OBJECT OF THE COLLEGE.

The leading object of the College, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and the applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially those that relate to agriculture and the mechanic arts, so far as the facilities at its disposal will permit; and at the same time the discipline obtained by the study of languages and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special or technical instruction given is thus based on a sound, general education.

The College, in fact, has become a distinctive school of industrial science—or POLYTECHNIC INSTITUTE—a title which by resolution of the trustees is permitted to be inscribed on the catalogue—and work of great value to the youth of the State is now being accomplished by fitting them, by a thorough science-discipline, in which handicraft in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The College now possesses facilities for giving laboratory instruction in applied science in the following departments:

I.—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres and is supplied with illustrated specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock–yard, etc., where lectures are delivered in presence of the object discussed, and during the year exercises in practical agriculture are given the students who enter upon this course of study.

II.—IN MECHANIC ARTS.

The laboratory of Mechanic Arts is used as an auxiliary in industrial education, as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the College each student enters this school, and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus, by associating manual and mental training, to thoroughly educate the student for the duties of life, whatever his vocation may be. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall 90x50 feet, and is provided with a twenty-five horse power Corliss engine, with indicator, a planer, circular saw, band-saw, two scroll saws, a buzz planer, twenty stands with lathes, with full sets of lathe and carpentry tools required for instruction.

A brick building with two rooms, each 30x35 feet has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, the other with a cupola furnace, having a capacity of 1,000 pounds, a core oven, moulding benches and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from the engine.

The machine department is equipped with eight engine lathes—one speed lathe, one 20-inch drill press, one post drill, one shaper, one five-foot planer, one universal milling machine, a corundum tool-grinder and small emery grinder.

The chipping and filing department is arranged with benches and vises for twelve students.

The Weston dynamo, used at present for lighting the halls, is located in a room adjoining the Mechanic Art laboratory, and is run by a ten-horse power engine, constructed by the students in the Mechanic Arts.

It is designed to supply the different laboratories with electricity by this dynamo.

III.—IN PRACTICAL CHEMISTRY.

The new chemical laboratory is supplied with new and modern apparatus, and in its entire equipment affords excellent facilities for instruction in practical chemistry.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that will accommodate sixty students, and lecture room with capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

It is equipped with the improved modern appliances necessary for instruction and investigation.

IV.—IN PHYSICS.

In the new College building provision will be made for laboratory work in the department of physics. Special rooms in the basement are appropriated for this purpose, and it is designed to equip them with all necessary appliances. An improved testing machine, of 35,000 pounds capacity, has recently been purchased of Riehle Bros. for this laboratory.

V.—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate twenty students.

VI.—IN BOTANY.

In the work of the agricultural experiment station, investigations in botany are given special attention, and unusual opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research.

VII.—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

VIII.—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, etc., is provided for the use of the students, and the customary exercises in the field are given.

IX.—IN DRAWING.

All the students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, that will accommodate fifty students, is provided with tables, lock boxes, etc.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

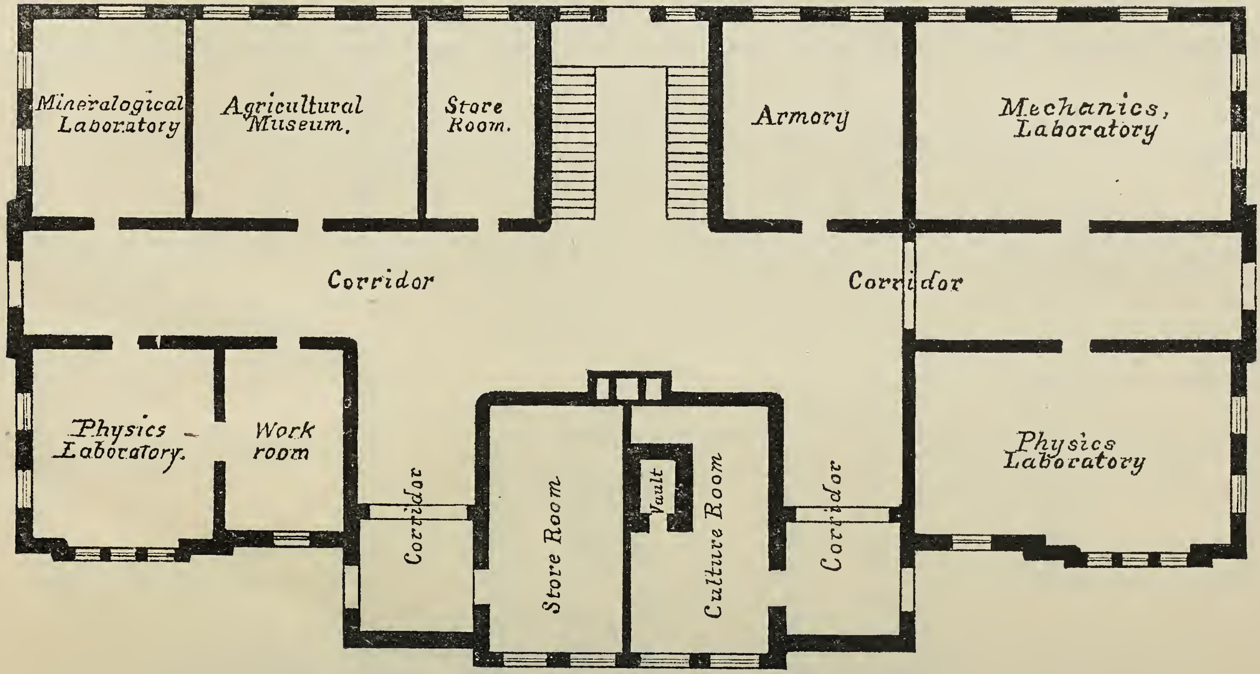
This department is under the charge of Lieut. J. B McDonald, 10th Cavalry, U. S. A.

It has recently been supplied with new cadet muskets and accoutrements for the corps, and, for artillery practice, with two three–inch rifle guns, carriages and limbers.

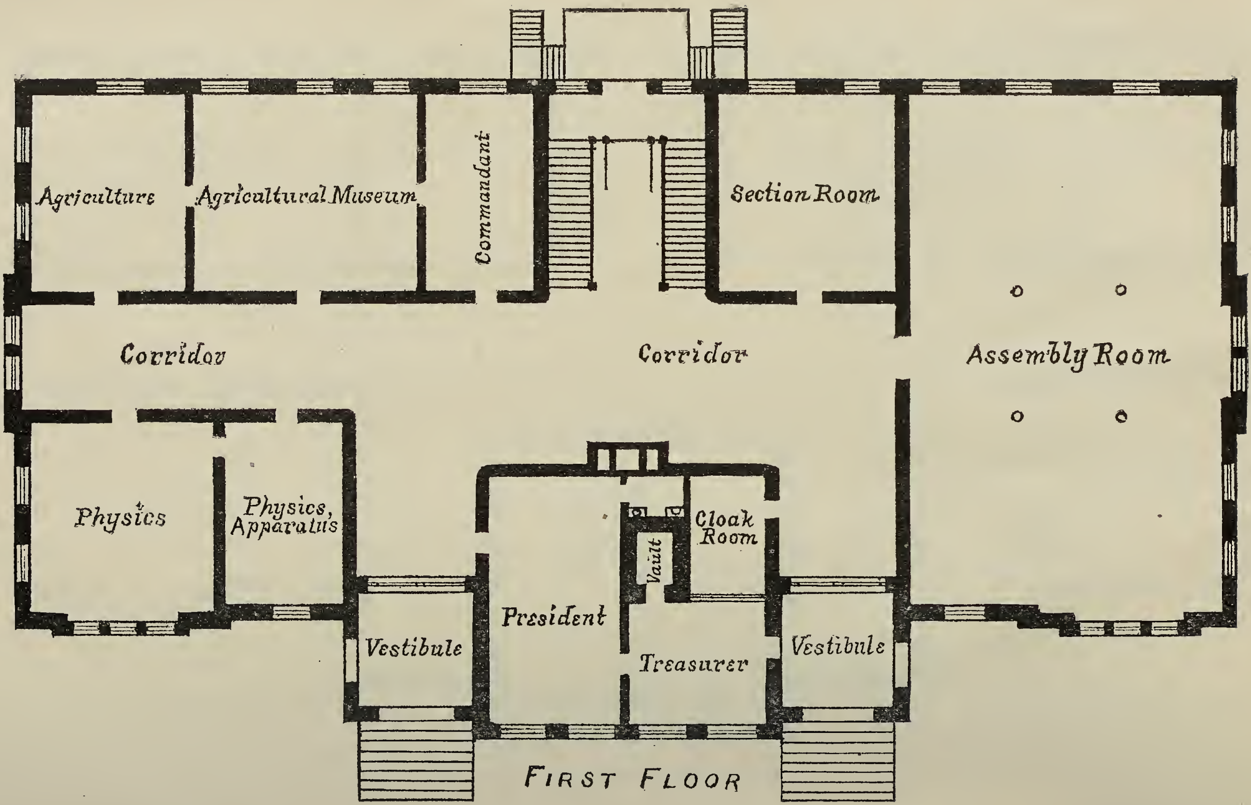
COLLEGE BUILDING.

The frontispiece is a representation of the recently constructed main college building. It is 160 by 71 feet, and contains, exclusive of the basement floor, thirty-five rooms. This building is not used for dormitories for students, but is appropriated for purposes of instruction and investigation.

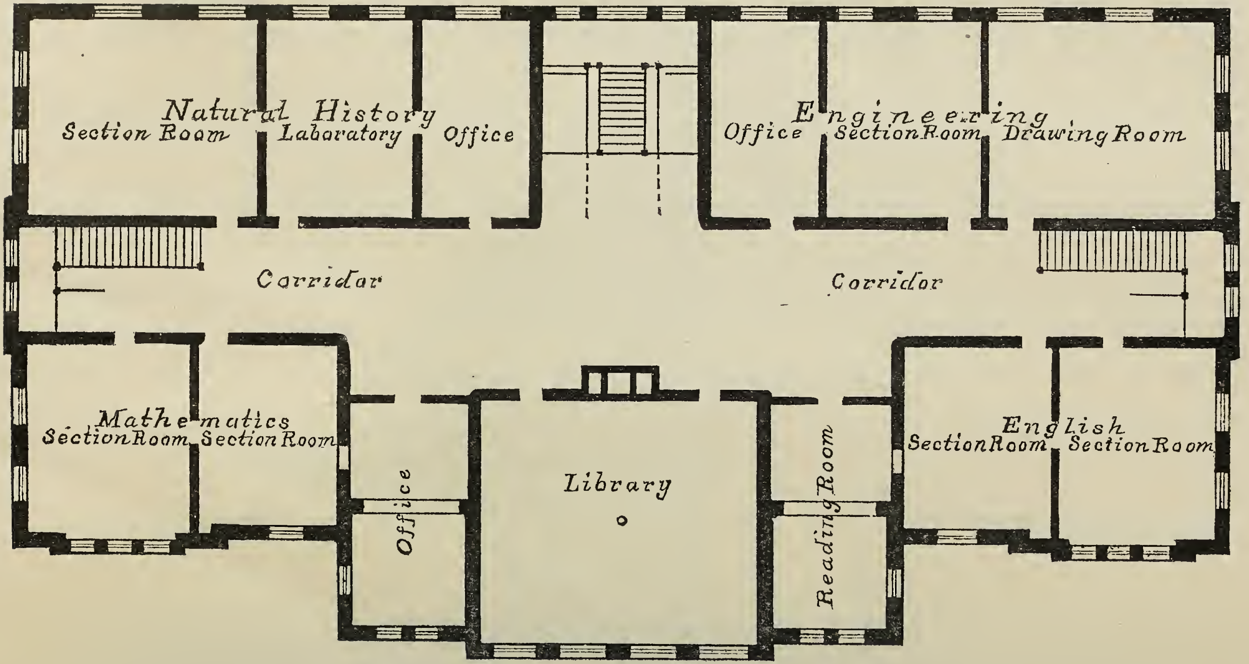
It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc. The illustrations of the four floors on the following pages indicate the uses to which the rooms have been assigned.



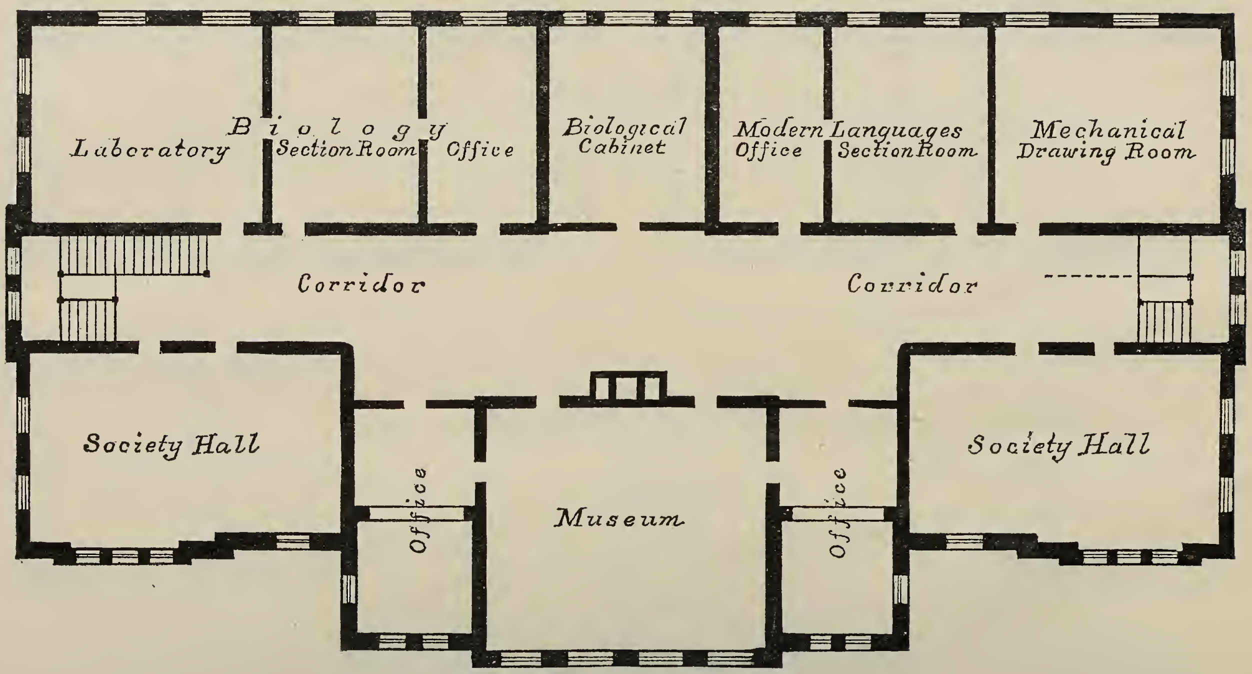
BASEMENT FLOOR


Agriculture
Agricultural Museum
Commandant
Section Room
Corridor
Corridor
Assembly Room
Physics
Physics, Apparatus
Cloak Room
Vault
President
Treasurer
Vestibule
Vestibule

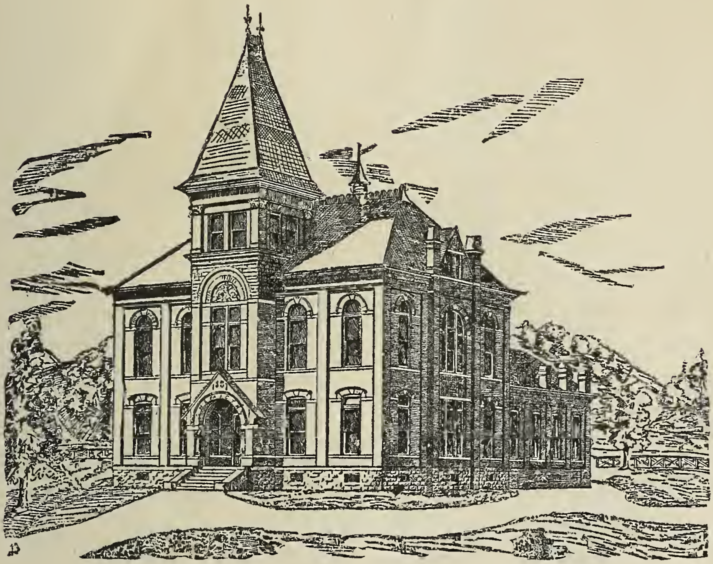
FIRST FLOOR



SECOND FLOOR

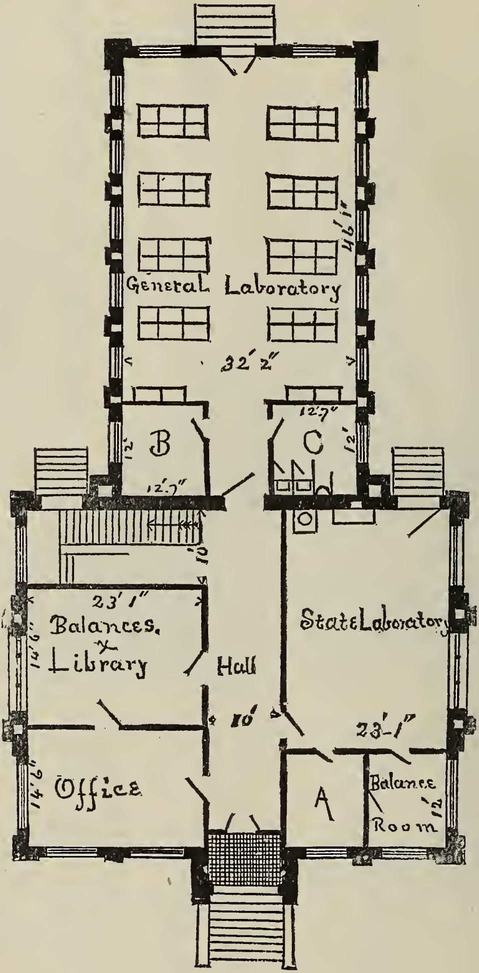

Biology
Laboratory
Section Room
Office
Biological Cabinet
Modern Languages
Office
Section Room
Mechanical Drawing Room
Corridor
Corridor
Society Hall
Office
Museum
Office
Society Hall

THIRD FLOOR



CHEMICAL LABORATORY.

The new chemical laboratory is a handsome two-story structure, 40 by 60 feet, with a rear projection 35 by 60 feet of one story and basement. The exterior is of pressed brick, with cut stone trimmings, and terra-cotta ornamentation.

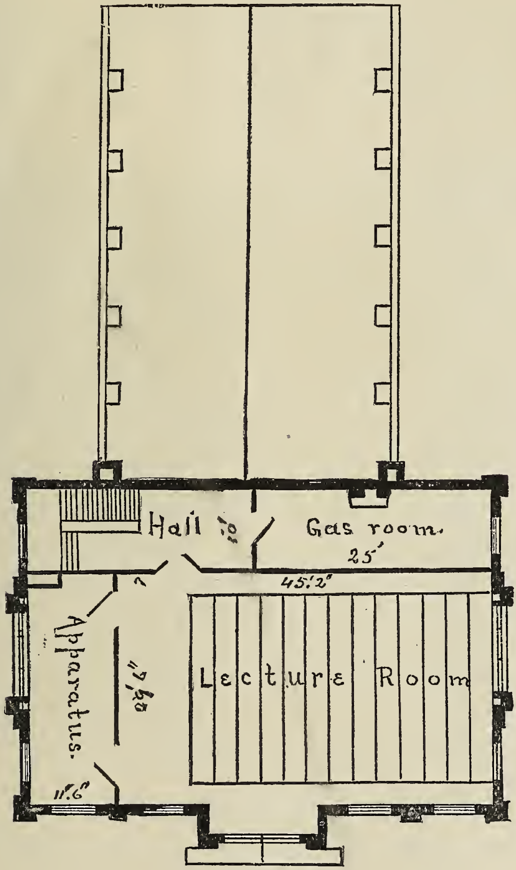


FIRST FLOOR.

A, Spectroscope and polariscope room; *B*, Assistant's private room; *C*, Combustion-furnace room.

On entering, the first room to the left is the office of the professor, to the rear of which is the library and balance-room. On the right, extending the whole length of the floor, is the State laboratory and laboratory for research. Two small rooms are cut off from this, one a balance-room, and the other for the spectroscope and polariscope.

Leading from the rear of the main hall is the door which enters the large laboratory for general work. Two rooms are cut off from this—one for combustion furnaces and the other a private working-room for the assistant.



SECOND FLOOR.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains the latest improved working-tables, with water, gas and every necessary appliance for chemical work. Niches in the wall opposite each working-table, with hoods where necessary, connect with flues, and furnish the best possible means of escape for deleterious vapors, while ventilators in the ceiling furnish additional means for getting rid of noxious gases. The pitch is sixteen feet in the clear, with paneled ceiling of oiled southern pine. The rooms are wainscoted throughout and finished in natural wood.

The second story contains a lecture-room and room for gas analysis. Around this lecture room are cases for containing crude and manufactured products, illustrating the subjects of agricultural and industrial chemistry, which are prominent subjects taught in this institution.

LANGDON HALL.

This is a two-story building, ninety by fifty feet. The second story is the audience hall, used for Commencement and other public occasions.

The first story is appropriated to the laboratory of Mechanic Arts.

GRADUATES IN 1889.

CLASS OF 1889.

WITH DEGREE OF BACHELOR OF SCIENCE. (B. Sc.)

Leslie Dallas Burdett,	Georgia.
Aaron Jason Burr,	Georgia.
Edmond Collins Cochran,	Montgomery.
Abednego Jackson Crawford,	Lee.
Bolling Hall Crenshaw,	Butler.
Arthur Campbell Crowder,	Jefferson.
Howard Grayson Crowder,	Jefferson.
Howard Staten Doster,	Autauga.
Arthur St. Charles Dunstan,	Virginia.
Pleasant Lee Hutchinson,	Georgia.
Oscar Don Killebrew,	Dale.
Andrew Manley Lloyd,	Lee.
William Lane Martin,	Jefferson.
Thomas Alexander Ross,	Lee.
Edgar Johnson Spratling,	Chambers.
Hugh McGhee Taylor,	Montgomery.
Paul Turner Vaughan,	Dallas.
Frederick Henry Vernon,	Chambers.
Thomas Morgan Watlington,	Marengo.

WITH DEGREE OF MASTER OF SCIENCE. (M. Sc.)

George Fleming Broun, B. Sc.,	Lee.
Eugene Willis Harris, B. Sc.,	Lee.
Augustus Archilaus Persons, B. Sc.,	Lee.

WITH DEGREE OF CIVIL ENGINEER. (C. E.)

John Thomas Gregory, B. Sc.,	Lauderdale.
Sterling Chambers Pitts,	Russell.

Distinguished Students.

AWARDED CERTIFICATES IN 1889.

The students of each class who secure a grade above 90 in three or more subjects are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1889:

FIRST CLASS.

Aaron Jason Burr,	Georgia.
Bolling Hall Crenshaw,	Butler.
Howard Grayson Crowder.	Jefferson.
Howard Staten Doster,	Autauga.
Arthur St. Charles Dunstan.	Virginia.
Pleasant Lee Hutchinson.	Georgia.
Oscar Don Killebrew,	Dale.
Thomas Alexander Ross,	Lee.
Hugh McGhee Taylor,	Montgomery.
Paul Turner Vaughan,	Dallas.
Frederick Henry Vernon,	Chambers.
Thomas Morgan Watlington,	Marengo.

SECOND CLASS.

Benjamin Cheney Abernethy,	Florida.
James William Bivins,	Lee.
George Samuel Clark,	Montgomery.

George Woodhull Emory,	Lee.
Stonewall Jackson Emory,	Lee.
Daniel Gillis,	Georgia.
Francis Brooks Matthews,	Lee.
Wilmot Bivins Matthews,	Lee.
Frank Davis Milstead,	Elmore.
John Milton,	Florida.
George Houston Waring,	Georgia.
William Cameron Weisinger,	Talladega.
James Fielder Wilkinson,	Dale.

THIRD CLASS.

Lawrence Ernest Baker,	Jefferson.
Harmon Benton,	Barbour.
Frank Jarvis Bivins	Lee.
James Albert Cox,	Lee.
James Nathaniel Dean,	Montgomery.
Walter Edward Fitzgerald,	Georgia.
William Thomas Glass,	Georgia.
Beverly Franklin Harwood,	Perry.
Cadmus Newton Hughes,	Walker.
Charles Cicero Johnson,	Tallapoosa.
Hendley Varner Kell,	Georgia.
John Calvin Kimball, Jr.	Georgia.
Thomas Dixon Lewis,	Butler.
Frank Allemong Lupton,	Lee.
William Audley Marshall.	Georgia.
Isaac Isaiah Moses,	Georgia.
Robert Clanton Smith,	Chambers.
Joseph Hardie Spence,	Talladega.
Jordan Emmett Thomason,	Randolph.

FOURTH CLASS.

Elbert Cathey Averyt,	Shelby.
Leigh Stafford Boyd,	Lee.
Charles Allen Brown,	Sumter.

Jacob Thomas Bullen,	Montgomery.
Amos Hill Cox,	Lee.
Henry Ticknor DeBardeleben,	Jefferson.
Henry Farris Dobbin,	Florida.
James Edward Gachet,	Lee.
Raleigh Frederick Hare,	Lee.
Leonidas Warren Payne,	Lee.
Richard Werner,	Georgia.
David Lewis Whetstone,	Elmore.

CATALOGUE OF STUDENTS

FOR THE SESSION 1889-90.

GRADUATE STUDENTS.

[*Residence is Alabama when State is not named.*]

NAME.	RESIDENCE.
Henry Clay Armstrong, B. Sc.,	Lee.
Bolling Hall Crenshaw, B. Sc.,	Butler.
Arthur St. Charles Dunstan, B. Sc.,	Virginia.
Pleasant Lee Hutchinson, B. Sc.,	Georgia.
M. Downer Pace,	Macon.
James Miles Quarles, A. B.,	Clay.
Paul Turner Vaughan, B. Sc.,	Dallas.

UNDERGRADUATE STUDENTS.

FIRST CLASS.

Benjamin Cheney Abernethy,	Florida.
James William Bivins,	Lee.
Thomas Jefferson Brooks,	Georgia.
Wilmer Callaway,	Lee.
Walter Girard Cook,	Lowndes.
George Woodhull Emory,	Lee.
Stonewall Jackson Emory,	Lee.
Francis Maury Fontaine,	Georgia.
Daniel Gillis,	Georgia.
William Groce Harrison,	Talladega.
Robert Edward Daniel Irvin,	Lee.
John Hammond Little,	Lee.

Wilmot Bivins Matthews,	Lee.
Frank Davis Milstead,	Elmore.
John Milton,	Florida.
Americus Mitchell,	Russell.
Robert Ernest Noble,	Calhoun.
Reuben Hayne Poole,	Georgia.
Percy Willett Terry,	Jefferson.
McKennie Thomas,	Coosa.
Thomas Chilton Thorington,	Montgomery.
George Houston Waring,	Georgia.
James Fielden Wilkinson,	Jefferson.

SECOND CLASS.

Lawrence Ernest Baker,	Jefferson.
Harmon Benton,	Barbour.
Frank Jarvis Bivins,	Lee.
John Postelle Buchanan,	Lowndes.
Seaborn Jesse Buckalew,	Chambers.
Edgar Duncan Burts,	Georgia.
James Albert Cox,	Lee.
James Nathaniel Dean,	Montgomery.
John Christian Driver,	Perry.
Arthur Thomas Dudley,	Georgia.
Walter Edward Fitzgerald,	Georgia.
William Thomas Glass,	Georgia.
Charles Bowls Glenn,	Lee.
Clifford Leroy Hare,	Lee.
Bryant Clower Harvey,	Lee.
Beverly Franklin Harwood,	Perry.
Charles Cicero Johnson,	Tallapoosa.
Egbert Jones,	Georgia.
John Allen Jones,	Lee.
Hendley Varner Kell,	Georgia.
John Calvin Kimball,	Georgia.
Thomas Dixon Lewis,	Butler.

Frank Allemong Lupton,	Lee.
William Audley Marshall,	Georgia.
Alexander Dowling McLennan,	Georgia.
Isaac Isaiah Moses,	Georgia.
William Henry Oates,	Mobile.
Edward Clyde Powers,	Lee.
John Larcus Ray,	Clay.
Petit Reynolds,	Macon.
William Edward Reynolds,	Macon.
Robert Clanton Smith,	Chambers.
John McCullough Tharin,	Georgia.
Walter Augustus Thomas,	Chambers.
Layton Casey Tucker,	Lee.
Horace Turner,	Mobile.
Clanton Ware Williams,	Montgomery.

THIRD CLASS.

William Sayre Allen,	Montgomery.
Walter Lampkin Anthony,	Bullock.
Archie Scruggs Averett,	Georgia.
Earl Averitt,	Jefferson.
Elbert Cathey Averyt,	Shelby.
Charles Dunwoody Bassett,	Georgia.
Louis Alexander Bize,	Georgia.
Leigh Stafford Boyd,	Lee.
Frank Manson Brannon,	Russell.
Charles Allen Brown,	Sumter.
Jacob Thompson Bullen,	Montgomery.
Joseph Little Burr,	Georgia.
Walter Bartow Clay,	Montgomery.
Alpheus David Connor,	South Carolina.
Amos Hill Cox,	Lee.
Henry Benning Crawford,	Georgia.
John Gereardt Crommelin,	Montgomery.
Henry Lee Davidson,	Montgomery.

George William Dantzler,	Autauga.
William Caleb Dean,	Chambers.
Henry Ticknor Debardeleben,	Jefferson.
Henry Farris Dobbin,	Florida.
Robert Sedgwick Edwards,	Massachusetts.
Ashby Floyd,	Lee.
Charles McKendree Floyd,	Chambers.
James Edward Gachet,	Lee.
Howard Glover,	Georgia.
Eugene Hamiter Graves,	Barbour.
Raleigh Williams Greene,	Lee.
Raleigh Frederick Hare,	Lee.
Walter Crafts Hazard,	Calhoun.
Louis Philip Heyman,	Georgia.
Arthur William Holstun,	Tallapoosa.
Andrew Silous Horn,	Clay.
Thomas Pearson Hutchinson,	Georgia.
Mims Lamar Howard,	Autauga.
Arthur Lynn Jones,	Autauga.
Clifton Arthur Jones,	Lee.
Neely Forsyth Jones,	Russell.
Harvey Ellis Jones,	Mobile.
Frank Keen,	Georgia.
Charles Leonard Ledbetter,	Jefferson.
Harold Magruder,	Georgia.
Robert Dibrell McAllister,	Georgia.
Glen McCulloh,	Lee.
Benjamin Walter McCutchen,	Lee.
Duncan McDougald,	Georgia.
Alfred Huger Moses,	Colbert.
Frank McLemore Mosely,	Montgomery.
Louis Sinclair Munford,	Hale.
Leonidas Warren Payne,	Lee.
Frank Peabody,	Georgia.
James Wesley Pierce,	Lee.
Walter Evan Richards,	Chambers.

William Cincler Roberson,	Chilton.
Robert Lee Shipp,	Georgia.
Joseph Augustus Speed,	Greene.
John Joseph Street.	Tallapoosa.
Signor Sidney Strong,	Georgia.
George Adams Thomas,	Montgomery.
William Augustus Thomas,	Chambers.
Sheldon Lynn Toomer,	Lee.
Robert Jefferson Trammell,	Lee.
Sydenham Benjamin Trapp,	Calhoun.
David Marshall Walker,	Marengo.
Richard Werner,	Georgia.
David Lewis Whetstone,	Elmore.
Richard Lane Williams,	Jefferson.
Thomas Felton Wimberly,	Lee.
David Edwin Wilson,	Jefferson.
Alfred Anderson Wellborn,	Georgia.

FOURTH CLASS, SECTION A.

Andrew Jackson Abercrombie,	Jefferson.
Wallace Reverdy Bishop,	Talladega.
Robert Lee Gordon Bivins,	Lee.
James Marion Blanton,	Winston.
Posey Party Brooks,	Escambia.
Lee Callaway,	Montgomery.
Thomas Eugene Chambless,	Georgia.
Clifford Fontaine Clopton,	Montgomery.
Charles Henry Crowder,	Montgomery.
Walter Scott Crump,	St. Clair.
Joseph Franklin Curtis,	Shelby.
Octavius DeShields Davis,	Madison.
George Alpheus Dennis,	Chilton.
Richard Augustus Drake,	Georgia.
Milton Reese Dudley,	Lowndes.
Joel Dumas,	Wilcox.

Thomas Martin Edwards,	Jefferson.
Ralph Ussery Falkner,	Montgomery.
Porter Campbell Flanagan,	Lee.
David Sylus Flanagan,	Lee.
Thomas Preston Flanagan,	Lee.
Milton Tucker Floyd,	Chambers.
John David Foster,	Lee.
Thomas Gardner Foster,	Montgomery.
John Flynn,	Marshall.
Crossland Clarence Hare,	Lee.
John Wethersby Hatcher,	Georgia.
Joseph Andrew Herron,	Montgomery.
Joseph Andrew Holifield,	Lee.
John Henry Holt,	Montgomery.
William Bostwick Howard,	Montgomery.
Casey Rex Hudson,	Lee.
Jeremiah Jackson,	Lee.
Young Jackson,	Elmore.
Hamilton Rowan Johnstone,	Mobile.
Byron Watts Jones,	Lee.
William Driskell Kelley,	Dallas.
Charles David Kline,	Texas.
James Monroe Little,	Lee.
Nimrod Lunsford Long,	Russell.
Thomas Francis Long,	Sumter.
Edward Baker Mell,	Georgia.
Hillory Herbert Milner,	Jefferson.
John Kennedy Moore,	Lee.
Charles Carter Newman,	Lee.
Minor Evan Nicholson,	Georgia.
John Austin Norton,	Montgomery.
Joseph Samuel Pou,	Lee.
Sidney Powell Reaves,	Georgia.
Charles Dodson Robertson,	Jefferson.
William Chappell Ross,	Lee.
Rufus William Rotton,	Chambers.

William Joseph Holt Shrews,	Montgomery.
Guy Allen Shafer,	Perry.
Logan Abner Siebold,	Marshall.
William Gulley Simpson,	Wilcox.
Charles Henry Smith,	Georgia.
Linton Sparks Smith,	Georgia.
James Howard Smith,	Georgia.
Henry Williamson Sparks,	Georgia.
Rosser Colbert Spratling,	Chambers.
William Simeon Street,	Tallapoosa.
Wyeth Todd,	Marshall.
George Augustus Tonsmeire,	Mobile.
William Van Antwerp,	Mobile.
Charles Hutchinson Weston,	Colbert.
Walter Roy Weedon,	Barbour.
William Dunbar Wills,	Mississippi.
Thomas Chalmers Wilson,	Jefferson.
Allie Walter Williams,	Georgia.
Clifton Hall Williamson,	Montgomery.
George DeKalb Winston,	Lee.
John Mitchell Woolley,	Georgia.

FOURTH CLASS, SECTION B.

Felix Reuben Allison,	Lee.
Harvey Armstrong,	Missouri.
Andrew Hamilton Ayres,	South Carolina.
Richard Isaac Betts,	Conecuh.
Wade Hampton Blake,	Georgia.
James Walker Bone,	Madison.
Francis Callaway,	Montgomery.
William DeLamar Clayton,	Lee.
James Rufus Dear,	Wilcox.
James Lee Denney,	Chambers.
Julius Confree Dunham,	Montgomery.
John Thomas Eckford,	Mississippi.

Benjamin Hardy Foster,	Tuscaloosa.
William Thomas Garner.	Madison.
John Samuel Godwin,	Barbour.
Harry Holgate,	Georgia.
Donald Calvin Hayden,	South Carolina.
Norman Crapster Jones,	Jefferson.
Daniel Gray Mayes,	Greene.
Orrin Joseph McCarley,	Chambers.
John Robert McNab,	Barbour.
Moses James McKinzie,	Lowndes.
Patrick Roland Cleburne McFarland,	Lauderdale.
Andrew Hammil Milstead,	Elmore.
William Washington Moore,	Blount.
Lauriston Green Moore,	Lee.
Thomas Winfrey Oliver,	Montgomery.
Benjamin Glover Perry.	Greene.
Henry Lee Porter,	St. Clair.
Charles Moss Powell,	Bullock.
James Harris Pride,	Madison.
John Dupree Roquemore,	Montgomery.
George Noble Ross,	Lee.
Philip Jacob Roth,	Dallas.
William Pinckney Shuler,	South Carolina.
Robert Otis Stone,	Mobile.
William Collier Slaughter,	Madison.
Henry O'Neil James Speir,	Wilcox.
Allen Campbell Tyson,	Montgomery.
Urbie Lewis Weston,	Colbert.
Andrew Hearne Whitman,	Lowndes.
Arthur Zachariah Wright,	Lee.
Cary Oscar Wright,	Lee.

SUMMARY.

Graduates,	7
First Class,	23
Second Class,	37
Third Class,	71
Fourth Class, Section A,	73
Fourth Class, Section B,	43
Total,	254

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English,	239	Biology,	17
History,	120	Agriculture,	104
French,	37	Physics,	108
German,	24	Natural History and Geology,	107
Latin,	58	Engineering,	28
Mental Science,	17	Drawing,	184
Political Economy,	20	Mechanic Arts,	140
Mathematics,	223	Military Tactics,	238
Chemistry,	104		

Military Organizations.

1889–'90.

President.

Wm. LeROY BROUN.

Commandant.

J. B. McDONALD, 1st Lieut. 10th U. S. Cavalry.

Surgeon.

J. H. DRAKE, M. D.

Cadet Captains.

1. F. D. MILSTEAD,
2. B. C. ABERNETHY,
3. JOHN MILTON,
4. F. M. FONTAINE.

Cadet 1st Lieutenants.

1. W. G. HARRISON, Qr. Mr.
2. R. E. NOBLE, Adj.
3. W. CALLAWAY,
4. G. H. WARING,
5. G. W. EMORY,
6. D. GILLIS,
7. J. W. BIVINS,
8. W. G. COOK,
9. P. W. TERRY,
10. R. H. POOLE.

Cadet 2d Lieutenants.

1. T. J. BROOKS,
2. W. B. MATTHEWS.

Cadet 1st Sergeants.

1. L. E. BAKER,
2. J. N. DEAN,
3. F. A. LUPTON,
4. B. F. HARWOOD.

Cadet Sergeants.

1. R. C. SMITH, Sgt. Maj.
2. W. A. MARSHALL, Qr. Mr. Sgt.
3. C. L. HARE, Color Sgt.
4. F. J. BIVINS,
5. W. H. OATES,
6. C. B. GLENN,
7. C. C. JOHNSON,
8. J. C. KIMBALL,
9. C. W. WILLIAMS,
10. J. A. COX
11. W.E. FITZGERALD,
12. S. J. BUCKALEW,
13. H. BENTON,
14. E. D. BURTS,
15. P. REYNOLDS,
16. E. C. POWERS.

Cadet Corporals.

1. F. PEABODY,
2. C. A. BROWN,
3. L. S. MUNFORD,
4. C. L. LEDBBETTER,
5. J. L. BURR,
6. J. E. GACHET,
7. H. B. CRAWFORD,
8. D. McDOUGALD,
9. C. D. BASSETT,
10. B. W. McCUTCHEN,
11. H. F. DOBBIN,
12. J. T. BULLEN,
13. G. W. DANTZLER,
14. D. L. WHETSTONE,

*15. R. WERNER,
*16. E. C. AVERYTT,
*17. R. F. HARE,
*18. A. S. AVERETT,
*19. G. A. THOMAS,

20. G. McCULLOH,
21. H. F. DEBARDELEBEN,
22. A. L. JONES,
23. W. B. CLAY,
24. R. D. McALLISTFR.

Note.—Numbers indicate the relative rank of the officer.

* Denotes color corporal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be of good moral character. To enter the fourth class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.

2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar and division into paragraphs.

3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers, the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots. (b) Algebra, to quadratic equations.

Those applicants who desire to continue the study of Latin in the fourth class, should be qualified to pass a satisfactory examination in Latin grammar and the first books of Cæsar, in addition to the above subjects.

For admission to the higher classes, students should be prepared to stand a satisfactory examination on all the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 10th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the fourth class are admitted to the sub-college department, which includes the fourth class, sec. B.

They will be advanced to full admission to the fourth class when they are qualified to pass satisfactorily the required examinations.

Students upon their arrival at Auburn will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven exercises per week required.

SPECIAL STUDENTS.

Students who are qualified to prosecute the studies of the second class, and those over twenty–one years of age who are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study they may prefer and for which they may be qualified ; all other students will be assigned to one of the regular prescribed courses of study, unless otherwise ordered by the Faculty.

Regular students who fail to pass satisfactory final examinations in any one study become special students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students who are not in full standing in all the prescribed studies of a class rank in the military department with that class in which they have the greater number of studies, and their names are so placed in the Catalogue.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical and Natural Sciences, with their applications; Agriculture, Biology, Mechanics, Astronomy, Mathematics, Engineering, Drawing, English, French, German and Latin Languages, History, Political Economy, Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are three degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion:

I. Course in Chemistry and Agriculture.

II. Course in Mechanics and Engineering.

III. General Course.

There are also two partial courses, each requiring two years for its completion:

IV. Two Years' Course in Agriculture.

V. Two Years' Course in Mechanic Arts.

Course I. includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II. includes the principles and applications of the sciences that directly relate to civil and mechanical engineering, and is adapted to those who expect to enter the profession of engineering.

Course III. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching, or in some commercial or manufacturing business.

Courses IV. and V. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and take one of the regular degree courses.

Students who complete either of these two year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

Those who have completed the general course in each department of the school of Mechanic Arts, and are qualified, can enter upon a more extended technical course in Mechanical Engineering.

PREPARATORY COURSE IN PHARMACY.

Students who expect to become practical pharmacists can enter upon a special course of Chemistry and Natural History and occupy all their time in the laboratories of these departments, under the immediate direction of the professors. With the excellent facilities offered in the chemical and botanical laboratories, scientific preparation of great value to the practical pharmacist can be obtained.

COURSE IN MINING ENGINEERING.

Students who have received the degree of B. Sc. in Engineering, or who have prosecuted an equivalent course of study, can enter upon a special course of Mining Engineering, which includes the following subjects of study, and will require a residence of one year:

Industrial Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, Mining Machinery, Drifting, Tunnelling, Timbering, Ore Dressing, and the various operations connected with the exploitation of mines.

This course of study will be under the charge of the Professors of Chemistry, Engineering and Natural History.

SPECIAL ONE YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study Agriculture will be permitted, without examination, to enter any class under the Professor of Agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They can attend the lectures in Agriculture in all the classes, and engage in the practical work at the experimental station, in the field, stock-yard, dairy, garden, orchard and vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of Scientific Agriculture.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this College, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I.—CHEMISTRY.
II.—ENGINEERING, FIELD WORK, SURVEYING, ETC.
III.—AGRICULTURE.
IV.—BOTANY.
V.—MINERALOGY.
VI.—BIOLOGY.
VII.—TECHNICAL DRAWING.
VIII.—MECHANIC ARTS.
(*)IX.—PHYSICS.

(*) It is designed to equip the Physical Laboratory for regular work next session

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FOURTH CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elem'tary Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

THIRD CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture.	3. Agriculture.	3. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture.
4. Natural History (lab'y)	4. Natural History (lab'y)	4. Natural History (lab'y)
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Begins March 1st.

FIRST CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Moral Science.	2. Moral Science.
2. Physics.	2. Astronomy.	2. Astronomy.
4. Natural History.	4. Natural History.	4. Natural History.
2. Agriculture.	2. Agriculture.	2. Biology.
2. Agricult'ral Chemistry	2. Agricult'ral Chemistry	2. Agricultural Chemistry
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

II.—COURSE IN MECHANICS AND ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FOURTH CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. El. Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

THIRD CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture (a).	3. Agriculture (a).	3. Agriculture (a).
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) For Agriculture may be substituted French or German or work in the Chemical Laboratory.

SECOND CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English or French.	3. English or French.	3. English or French.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
4. Lab'y, Mineralogy.	4. Lab'y, Mineralogy.	6. Field Work, Engin'g.
4. Field Work, Engin'g.	4. Field Work, Engin'g.	3. Military Drill.
3. Military Drill.	3. Military Drill.	

FIRST CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature (b).	2. Political Economy (b).	2. Political Economy (b).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Natural History.	2. Natural History.	2. Natural History.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
Field Work, Engin'g.	Field Work, Engin'g.	Field Work, Engin'g.

III.—GENERAL COURSE.

The numerals opposite the subjects indicate the number of hours per week.

FOURTH CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	2. History.
5. Latin.	5. Latin.	4. Latin.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

(b) For Eng. Lit. and Pol. Econ. may be substituted French or German.

THIRD CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	4. Latin.
2. History.	2. History.	3. Botany.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. Latin.	3. Latin.	3. Latin.
2. German.	2. German	2. German.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Laboratory Work (a).	6. Laboratory Work (a).	6. Laboratory Work (a).
3. Military Drill.	3. Military Drill.	3. Military Drill.

FIRST CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Moral Science.	2. Moral Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Natural History.	2. Natural History.	2. Natural History.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
English Thesis.	English Thesis.	English Thesis.

(a) The student may elect the Laboratory of any department for which he may be qualified.

IV.—TWO YEARS' COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elem'tary Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

V.—TWO YEARS' COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elem'tary Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
5. Agriculture.	5. Agriculture.	5. Agriculture.
12. Practical Agriculture.	12. Practical Agriculture.	12. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SCHEDULE OF EXERCISES.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I. 18–9	4. Algebra. 3. Latin. 2. French. 1 & 2. Drawing. 4. Mech. Arts.	4. Geometry. 3. Latin. 2. German. 1 & 2. Drawing. 2. Botany.	4. Algebra. 3. Latin. 2. French. 1 & 2. Drawing. 2. Practical Agr. 4. Mech. Arts.	4. Geometry. 3. Latin. 2. German. 1 & 2. Drawing. 2. Botany.	4. Algebra. 3. Latin. 2. French. 1 & 2. Drawing. 2. Practical Agr. 4. Mech. Arts. 1. Biology.	Exercises in Elocution.
II. 9–10	4. English. 3. Chemistry. 2. Engineering. 1. Calculus. 1. French. 4. Mech. Arts.	4. History. 3. Agriculture. 2. Engineering 2. Botany. 1. Physics.	4. English. 3. Chemistry. 2. Engineering. 1. Calculus. 1. French. 4. Mech. Arts. 2. Practical Agr.	4. History. 3. Agriculture. 2. Engineering. 2. Botany. 1. Physics.	4. English. 3. Chemistry. 2. Engineering. 1. Biology. 1. Calculus. 1. French. 2. Latin. 4 Mech. Arts. 2. Practical Agr.	Military Drill.
	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
III. 10–11	3. English. 2. Physics. 1. German. 1. Engineering. 1. Biology.	3. History (1.2). 3. Botany (2.3). 2. Agriculture. 2. Latin. 1. Engineering. 4. English.	3. English. 2. Physics. 1. German. 1. Engineering. 1. Biology.	3. History (1. 2). 3. Botany (2. 3). 2. Agriculture. 2. Latin. 1. Engineering. 4. English.	3. English. 2. Physics. 1. German. 1. Engineering.	4. Mech. Arts. 1 Sec. 3. Mech. Arts. 2 Sec. 1.2. Machine Work. Laboratory. Field Work, Eng'ng.

IV. I I—I 2	4. Physics (1). 4. Physiology (2). 4. Agriculture (3). 4. Latin. 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1). 1. Political Economy (2.3).	4. Mechanic Arts 1 Sec 4. Latin. 3. Drawing. 2. Mathematics. 1. Chemistry. 1. Latin.	4. Physics (1). 4 Physiology (2). 4. Latin. 4. Agriculture (3). 3. Agriculture (1. 2). 2. Mathematics. 2. Chemistry. 1. English (1). 1. Political Economy (2. 3).	4. Mechanic Arts 1 Sec 4. Latin. 3. Agriculture (3). 2. Mathematics. 1. Chemistry. 1. Latin.	4. Physics (1). 4. Physiology (2). 4. Agriculture (3). 4. Latin. 3. Drawing. 2. Mathematics. 2. Chemistry. 1. Military Science.	4. Mech Arts 1 Sec. 3. Mech. Arts 2 Sec. 1 & 2. Machine Work. Field Work, Eng'ng. Laboratory
V. I 2—I	4. Drawing. 3. Mathematics. 2. English.	4. Mechanic Arts 1 Sec 3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Mental Science.	4. Mechanic Arts 1Sec 3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Mental Science.	Mechanical Arts.
P. M.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
VI VII 2—4	4. Mech. Arts 2 Sec. 3. Mech. Arts 1 Sec. 3. Field Work Agr. 1 & 2. Laboratory. 1 & 2. Field Work Eng'ng.	3. Mech. Arts 2d & 3d Sec. 2. Mineralogy Laboratory. 2. Mech. Arts. Military Drill.(*)	4. Mech. Arts 2 Sec. 3 Mech. Arts 1 Sec. 3. Field Work Agr. 1&2 Laboratory Chem Exer's in Elocution. 1 & 2. Field Work Eng'ng.	3. Mech. Arts 2d & 3d Sec. 2. Mineralogy Laboratory. 1.2 Mech. Arts. Military Drill.(*)	4. Mech. Arts 2 Sec. 3. Mech. Arts 1 Sec. 3. Field Work Agr. 1&2. Laboratory Chem 1&2. Field Work Eng'ng Exer's in Elocution.	

Chapel services daily at 7.50 A. M.
Numbers prefixed denote classes, affixed (1), (2), (3) denote terms.
*From 4.30 to 5·30 P. M.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with Elementary Rational Mechanics, treated graphically.

This is followed by a full discussion of Molecular Mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the second class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the first class include Electricity and its applications; Optics, Astronomy and Meteorology.

Text-Books.—In Physics, Atkinson's Ganot. In Astronomy, Young.

MATHEMATICS.

PROF. SMITH.

The general course for the first two years embraces the first year, Algebra and Geometry, six books; second year, Solid Geometry, Plane and Spherical Trigonometry, Surveying, Mensuration.

Two objects are sought to be attained: First, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given in the third class in farm, town and government land surveying, dividing land, mapping, plotting and computing of areas, etc.; also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays thefoundation for the pure and applied Mathematics of the Mechanical and Engineering course. Analytical Geometry, Descriptive Geometry and Calculus are pursued in the Engineering course. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of principles and formulæ.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Schuyler's Surveying, Wentworth's Analytical Geometry, Waldo's Descriptive Geometry, Taylor's Calculus, Olney's and Wentworth's Trigonometry.

NATURAL HISTORY AND GEOLOGY.

PROF. MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of mineral in the State. The origin of ore deposits, mineral springs and geological relations of soils are carefully studied.

There is also a course of advanced work in practical Geology for the post-graduate students. This subject is pursued by applicants for degrees of Master of Science and Mining Engineering.

The second class in Engineering spend two terms in Mineralogy and blow-pipe work.

Botany.—The students of the third class begin the study of Botany the first of March and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the neighboring fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section. All students of the third class are required to study Botany.

In the second class, in the course of Chemistry and Agriculture, an amount of time is devoted to systematic and structural Botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure ; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all the necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students. A dark room is attached to this laboratory for micro-photographic work.

TEXT-BOOKS.

Le Conte's Geology, Gray's Botany, Dana's Mineralogy, Goodale's Physiological Botany, Nelson's Herbarium and Plant Descriptions.

ALABAMA WEATHER SERVICE.

The United States Signal Service has established in Alabama a State system for collecting meteorological data relating to climatic changes. The service is now in successful operation with the central office located at this Institute. Bulletins are issued at the close of each month, compiled from reports sent the Director from numerous stations scattered throughout the State. An opportunity is thus offered the students in Meteorology of becoming familiar with the system so long successfully operated by the Department at Washington.

CIVIL ENGINEERING AND DRAWING.

PROF. LANE.

CIVIL ENGINEERING.

The special studies of this department begin in the second class, and require a good knowledge of Algebra, Geometry, Trigonometry and Analytical Mechanics. They are as follows :

Second class.—Simple, compound, reversed and parabolic curves, turnouts and crossings, leveling, gradients, setting slope stakes, location and construction of common roads and railroads.

First class.—Classification, appearances, defects, seasoning, durability and preservation of timber ; classification and description of natural building stones ; bricks and concretes ; cast and wrought iron, steel and other metals ; limes, cements, mortars and their manufacture ; paints and other preservatives ; classification of strains and a general mathematical discussion of the same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds; their construction and strains determined mathematically and graphically ; common roads, their coverings, location and construction ; location and construction of railroads ; navigable, irrigation, and drainage canals ; river and sea-coast improvements. Theory and practice are combined in both classes.

TEXT-BOOKS.

Second Class.—Henck's Field Book for Railway Engineers, Gillespie's Roads and Railroads, Parson's Track.

First Class.—Wheeler's Civil Engineering, Von Ott's Graphic Statics.

DRAWING.

All of the students of the third and fourth classes are required to take Drawing; but only the students in Mechanics and Engineering in the first and second classes.

The fourth class is taught linear and free-hand drawing. The third class is instructed in the principles of orthographic and isometric projections, shade and shadows, practical, perspective and tinting. In the second class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and shadows and tinting; also sketches of tools and machines, plans, elevations and cross-sections of buildings and blue prints. The first class makes topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Fourth Class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Third Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Second Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

First Class.—French, English and American Plates belonging to the College, Keuffel & Esser's Alphabet.

AGRICULTURE.

PROF. NEWMAN.

The course of instruction in this department embraces: I., soils; II., plants; III., domestic animals. In the fourth class twenty lectures, covering the third term of the session, treat of soils, their classification, physical defects and remedies, causes of diminished fertility, and the means used to protect them from waste and restore fertility, the theory and practice of surface and sub-drainage, etc. The subject is treated with special reference to the different classes of soil in Alabama, omitting as far as possible questions involving a knowledge of Chemistry and Botany—subjects not taught in the fourth class.

In the third class, in addition to the discussion of the physical properties and mechanical treatment of soils, the methods of studying their chemical defects and their remedies are discussed. The sources of the important elements of plant food, and their use upon different soils and plants, the restoration of humus, saving home manures, composts, commercial fertilizers, the office of different chemical elements in plant development—the relations of plant growth to soil and atmosphere, the theory and practice of restoration of crops, terracing and grading to prevent washing, plows and plowing—indeed everything connected with tilling the soil passes under review as foundation work.

Southern agriculture is then treated in the concrete—the history, nature and cultivation of each of our field crops discussed as regards their adaptation to and treatment upon the soils of Alabama. This occupies the first and second terms. The third term is devoted to domestic and commercial horticulture, poultry, sheep, cattle-breeding and management of the dairy, etc. In the second class stock breeding and management is completed, and a thorough course in pomology, including the propagation of nursery stock, planting, manuring, pruning, cultivating, harvesting and marketing every species of fruit, treated theoretically and practically, occupies the remainder of the session. Barry's Fruit Garden, corrected for our latitude, is used in this class. In the senior class a series of lectures is delivered upon political economy in its special relations to the pursuit of agriculture and the relations of capital and labor devoted to agriculture; the selection, purchase, equipment and management of a farm, the ratio between fixed and working capital, the employment and management of labor, etc., etc. The science of cattle feeding occupies the second term, and landscape gardening, treated with special reference to the improvement of country homes, occupies the remainder of the session.

CHEMISTRY.

PROF. LUPTON. ASSISTANT, L. W. WILKINSON.

Instruction in this department embraces—

1. A course of lectures in General Chemistry.
2. A course of lectures in Industrial Chemistry.
3. A course of lectures in Agricultural Chemistry.
4. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in General Chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of Chemical Philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of Organic Chemistry. In this course the more common applications of Chemistry to the Arts and Manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and most approved instruments necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cook's Chemical Philosophy, Chemical Journals.

2. The lectures on Industrial Chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of Chemistry in the Arts and Manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, heat-

ing, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufacturing products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy.

3. Course in Agricultural Chemistry: This consists of lectures on Chemistry in its applications to Agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock and the various operations carried on by the intelligent and successful agriculturist.

BOOKS OF REFERENCE.

Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation with Chemistry, Scientific Journals, Reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign Agricultural Departments and Stations.

4. The Course of systematic Laboratory Work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operation of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the Chemical Laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis. At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from the deposit.

BOOKS USED.

In Qualitative Analysis—Jones, Fresenius, Plattner.

In Quantitative Analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In Agricultural Chemical Analysis—Church, Frankland. Official methods of the Association of Agricultural Chemists.

CHEMICAL LABORATORY.

(For description of the building, see page 11.)

The Chemical Apparatus recently purchased for the new laboratory consists of a full supply of the latest and most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, a new and improved Schmidt and Hænsch's Polariscope has been imported, two short-arm Becker Balances of latest pattern, Bunsen Spectroscope, Zeiss' Microscope, and other instruments for delicate and accurate work.

ENGLISH AND LATIN.

PROF. THACH.

ENGLISH.

In this department the students are carried through a systematic course of study in the English Language and literature In the courses of study which do not include the ancient classics, a full course in English is especially important. It is therefore designed, as much as the time allotted permits, to familiarize these students by frequent exercises with the standard authors of the language.

The course of study is as follows:

Fourth Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied.

Whitney's Essentials, Lockwood's Lessons in Rhetoric.

Third Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on literary and historic themes.

Genung's Rhetoric, Scudder's American Poems, Abbott's How to Write Clearly. Weekly exercises in declamation are required of this class.

Second Class.—Three hours a week; critical study of English Classics, History of English and American Literature, Logic, Essays.

Shaw's History of English Literature, Abbott's English Lessons, Hale's Longer English Poems.

First Class.—Two hours a week, first term. Principles of criticism and study of English Classics; second and third terms, Political Economy. Two hours a week, first and second terms, Mental Science; third term, Moral Science.

Shakespeare's Plays, Chaucer's Canterbury Tales, Wayland's Science of Wealth, Hickok's Mental Science, Gregory's Christian Ethics.

Three original orations are required during the year of each student in the first and second classes.

LATIN.

The subjects taught in this department are the Latin Language and Literature.

The modes of instruction are by translation from the Latin texts into English and from English into Latin.

The constant use of black-boards adds much to the progress and accuracy of the student.

A systematic course of exercises, illustrative of the principles of Latin etymology and syntax, is carried on in connection with the reading of the authors prescribed. Special attention is given to English derivatives from the Latin, and to the corresponding idioms of the two languages.

The progress of the student is valued not so much by the number of books read, as by his ability to read Latin and explain the principles of interpretation and construction.

Latin author read:

Fourth Class.—Virgil, Cicero's Orations, Grammar and Composition.

Third Class.—Cicero's Composition.

Second Class.—Tacitus, Horace, Selections from Latin poets and Prose writers, Classical Literature.

First Class.—Cicero's Tusculan Disputations, Terence, History of Latin Literature.

MECHANIC ARTS.

G. H. BRYANT, B. S. INSTRUCTOR.

J. J. WILMORE, B. A. BLAKEY, ASSISTANTS.

The course in Manual Training covers three years, as follows: First year, wood-working—carpentry and turning; second year, pattern-making and foundry and forge work—moulding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes (5th, 4th and 3d). For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

LIBRARY
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PLAN OF
LABORATORY
OF
MECHANIC ARTS

ALA. POLY. INST.

SCALE 1/16" = 1'

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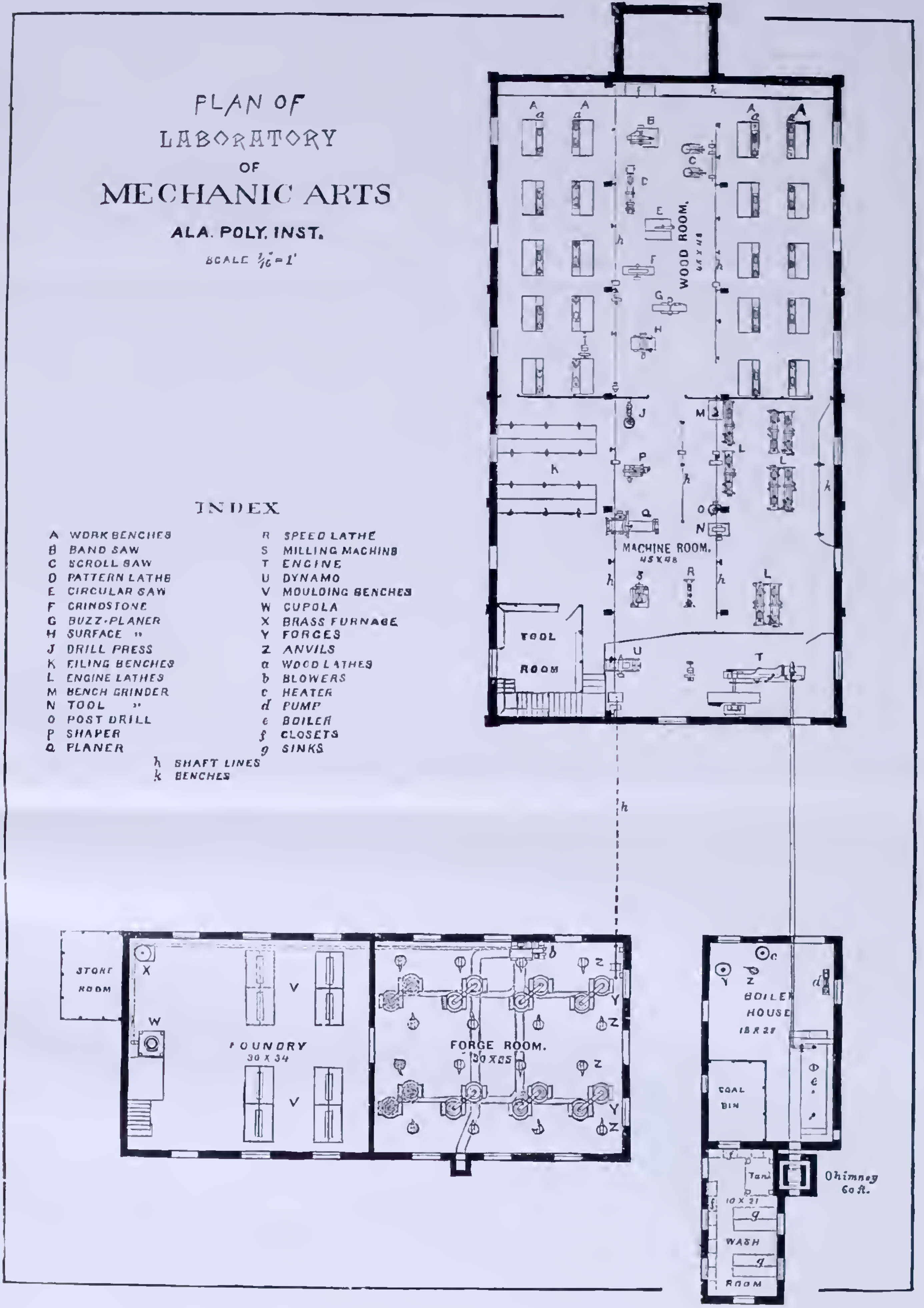


The power for running the apparatus in this department is derived from a twenty-five horse power Harris-Corliss automatic engine, which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 20 double wood-working benches, each with complete set of carpenter's tools; 20 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 buzz planer; 2 scroll saws (power); 1 large pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. In addition to these, the tool-room is supplied with a variety of extra hand-tools for special work.

The equipment for the foundry consists of moulding-benches for 12 students, each supplied with a complete set of moulder's tools; a 14-inch cupola, with all modern improvements, capable of melting 1,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small moulding flasks, special tools, etc.

The forge shop equipment consists of 16 hand-forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine tools in the machine department are as follows: 6 engine-lathes (screw-cutting), 14-inch swing, 6-foot bed; 2 engine-lathes, 16-inch swing (one with taper attachment); 1 speed lathe, 10-inch swing; 1 20-inch drill-press (power-feed); 1 15-inch shaper; 1 22-inch x 22-inch x 5-foot friction planer; 1 universal milling machine; 1 corundum tool-grinder (14-inch wheel); 1 bench grinding-machine (small); 1 post drill press (14-inch). A part of this room is set apart for vise-work—chipping and filing—and benches for 12 students are provided, each with vise and sets of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, etc.

The nature of the work in each department is as follows:

1ST YEAR.

I. A course of carpentry (hand work covering the first term and part of the second, or about five months).

The lessons include instruction on the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber-splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the three months of the third term. The lessons comprise, first, nature and use of lathe and tools, plain straight turning caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck-work, hollow and spherical turning.

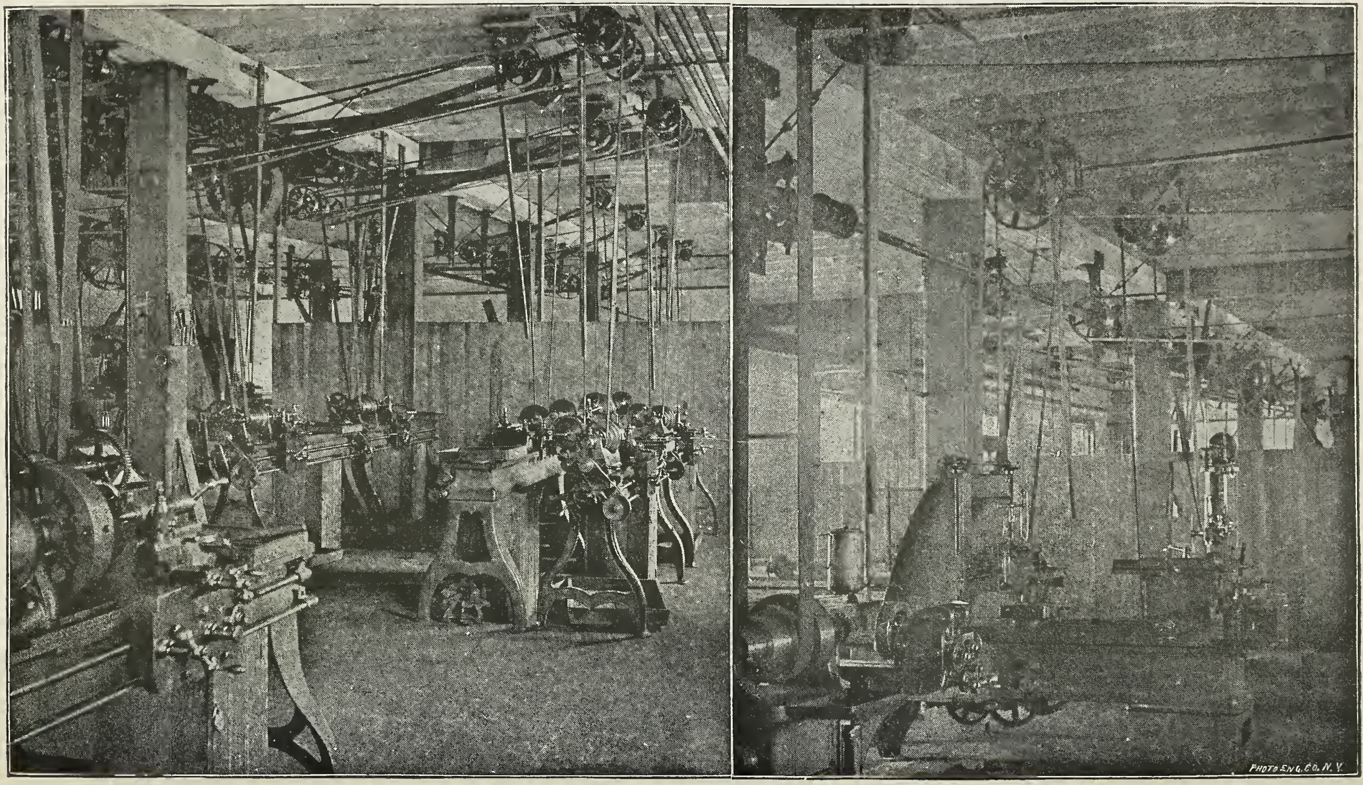
2D YEAR.

I. A course in pattern-making, covering the first half of the first term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general moulding.

II. A course in moulding and casting in iron and brass occupying ten weeks. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three-part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola, each student in turn taking charge of a melting.

III. A course in forge work in iron and steel occupying



VIEWS OF MACHINE ROOM,
LABORATORY OF MECHANIC ARTS.

the remainder of the year. The lessons are arranged so that the students, in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

3D YEAR.

I. A course in chipping and filing covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc.; filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, dove-tail work, sliding and tight fits, sawing, pin, screw and key filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass: Turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals: Such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

Instruction is generally given, first, by black-board drawings or sketches which the student copies, with dimensions in note-book, with which each one provides himself; thus each one works from his own notes. This is supplemented, whenever necessary, by the actual construction of the lesson by the instructor before the class, second by inspection and direction at the bench by the instructor.

Students desiring to pursue the study of applied mechanics beyond the above course will take a special course of Steam and Mill Engineering, supplemented by experiment and practice with the apparatus, including steam generation and the forms, construction and use of steam-boilers and accompanying apparatus; steam as a motive power, and forms, construction and use of the steam engine, with the study and use of the indicator; transmission of power—shafting, belting, gearing, etc.; also elementary theoretical mechanism.

BIOLOGY.

PROFESSOR ATKINSON.

Elementary Biology. Three lectures a week during the second term will be given to the fourth class upon the elementary principles of biology. The course will include a discussion of the fundamental physiological properties of animal and plant life. The lectures will be supplemented by experiments, demonstrations and microscopic illustrations before the class.

Practical Biology. This subject is presented by lectures twice a week to the senior students in Agriculture and Chemistry. The first part of the year will be devoted to the study of fungi, giving prominence to those which cause diseases of cultivated plants. This will be followed with the study of insects, including those injurious and beneficial to Agriculture. Special attention will be given to methods employed in combating the attacks of fungi and insects upon plants.

The reference books will be announced to the classes. The department contains a carefully selected library of the standard works on biology and many rare and valuable works, besides current periodicals adopted to aid in the special investigations carried on in the laboratory.

MODERN LANGUAGES AND HISTORY.

C. H. BARNWELL, JR., ADJUNCT PROFESSOR.

MODERN LANGUAGES.

The following regular courses are given in French and German :

French.—First Year: Three recitations a week. During this year the principal object is to acquire a thorough knowledge of the elements of grammar, and a correct pronunciation, together with facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year, the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and careful instruction is given upon the laws of grammar and the construction of the language.

German.—Two Years: Two recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

Special Courses.—In addition to these regular courses, additional classes are formed for special study in the literature, or for special study in any particular direction desired. when the number of students desiring it is sufficient.

TEXT-BOOKS.

French—First Year: Joynes-Otto's French Grammar and Introductory Reader.

Second Year: Super's French Reader, Jeanne d'Arc, and d'Avare. Heath's French Dictionary recommended.

German—First Year: Joynes-Meissner's German Grammar, and Joynes' Reader.

Second Year: Hauff's Karavane, Peter Schlemihl, Die Journalisten, Heath's German Dictionary recommended.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that History is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. This causal relation of events is closely studied and the students are taught to investigate for themselves the growth of ideas, and to trace particularly their development in the United States, so as to acquire a practical knowledge of the history and present workings of our government and institutions. The knowledge acquired is rendered clear and permanent by frequent comparison of customs and laws, and also by diagrams, charts and maps. Instruction is given by lectures and text-books.

The course covers one year and a part of the next, and embraces the History of the United States, studies on our government and its institutions and on general history.

TEXT-BOOKS.

First year: Johnston's U. S. History, and Swinton's "Outlines of the World's History."

Second Year: Myers' Mediæval and Modern History.

MILITARY SCIENCE AND TACTICS.

LIEUT. J. B. McDONALD, U. S. ARMY, COMMANDANT.

Military Science and Tactics are required to be taught in this institution by law. This law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the School of the Soldier, of the Company and of the Battalion ; also in Guard Mountings, Inspections, Dress Parades, Reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern Cadet rifles and accoutrements and two pieces of field artillery. Ammunition for practice firing is used under the direction of an experienced officer.

The following uniform of standard Cadet gray cloth has been prescribed for dress, viz.: Coats and pants as worn at West Point, with sack coat for fatigue, dark blue Cadet cap. A neat and serviceable uniform can be obtained here at $18. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for proficiency in drill, deportment and studies. Each company is officered by one Captain, two 1st Lieutenants, one 2d Lieutenant, and with a proper number of Corporals. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The Second Class recites once a week in the United Stats Infantry Tactics.

The First Class recites once a week in " Notes on Military Science."

POST-GRADUATE DEGREES.

There are three Post-Graduate Degrees—MASTER OF SCIENCE, MINING ENGINEER and CIVIL ENGINEER.

A Post-Graduate Degree may be obtained by a graduate of this College, or of any other institution of equal grade, by one year's residence at the College, spent in the successful prosecution of a course of study in applied science prescribed by the Faculty.

Candidates must also present to the Faculty a satisfactory thesis, showing independent investigation upon some subject pertaining to their course of study, and must pass a satisfactory examination on the course of study prescribed. The examination is written, and also oral, in presence of the Faculty.

Applicants for Post-Graduate Degree are, by order of the Board, permitted to matriculate without payment of fees.

They are subject to the general regulations as other students, but are exempt from all military duty.

Resident graduates, who are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College, except chemical laboratory, without payment of regular fees.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above 90 per cent.

Certificates of Distinction are awarded in public on Commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class, and also to those who obtain three distinctions in the fourth class, four in the third or second class, and five in the first class, provided they have satisfactorily passed all the regular examinations of that session.

TOUR OF OBSERVATION.

At the close of the second term an opportunity will be given members of the senior class to inspect, under the supervision of a member of the Faculty, some of the mines, furnaces and manufactories of Alabama, accessible to the College.

This inspection will prove an object lesson of value to students who have prosecuted studies allied to engineering.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction, in a form adapted to permanent preservation.

From the record a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written recitations, or monthly examinations on the studies of the month, are held at the option of the professor.

At the end of each term written or oral examinations, or both, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examination, can be promoted to full standing to the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within six weeks of the examination, except in extreme cases.

Examinations for degrees or certificates of proficiency embrace the entire subject of study in the course.

LIBRARY.

A commodious room in the new building has been appropriated to the library. Having suffered severely by the fire, it now needs a large supply of books, and the hope is entertained that these will soon be provided. When this is done, it is designed to make it an important educational feature of the college. At present it has valuable reference books and a limited number suitable for students. It is open daily, when students are permitted to select books under prescribed regulations.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study, and punctuality in attendance on recitations and all other duties, is required of every student.

Students are not allowed to have in their possession weapons or arms not issued for the performance of military duty.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the Cadet are manifest.

Privates of the first class may be excused by the President from all military drills, and also students over twenty-one years of age, who are permitted to matriculate and devote their time to one special study, as chemistry, agriculture, etc.

RELIGIOUS SERVICE.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized, and through its weekly meetings exerts a wholesome Christian influence among the students of the College.

The following students are the officers of the Association:

W. G. Harrison, President.
J. F. Wilkinson, Vice-President.
D. Gillis, Corresponding Secretary.
J. W. Bivins, Treasurer.

LOCATION.

The College is situated in the town of Auburn, sixty miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-one feet above tide-water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis on a subject of immediate relation to some study of his course, and deliver the same at Commencement, if required by the Faculty.

This thesis must be given to the Professor of English by the first of May.

LITERARY SOCIETIES.

There are two Literary Societies connected with the College—the Wirt and Websterian. Each has a hall in the College building.

These Societies hold celebrations on the evenings of Thanksgiving Day and the 22d of February, and also Commencement week. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in presence of the Faculty and students.

The *first and second terms* the students of the third class are exercised in declamation.

The *second term* the members of the second class deliver original orations.

The *third term* the members of the first class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The Annual Alumni Oration, by a member of the Society, is delivered in the chapel during Commencement week. The following are the officers of the Society:

T. H. Frazer, M. D., President.

J. C. Street, Vice-President.

C. C. Thach, Treasurer and Secretary.

The Alumni Oration will be delivered next Commencement by J. C. Street.

BOARDING.

The College has no barracks or dormitories, and the students board with the families of the town of Auburn, and thus enjoy all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after the "call to quarters," or are guilty of any violation of order.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President.

EXPENSES.

Incidental fee, per half session	$ 2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
Board per month, with fuel and lights	$12 to 14 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Board no fees can be remitted.

There is no charge for tuition.

For students entering after January 1st, the fees for half session only are required.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to College property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, will be refunded to the student.

AMOUNT OF DEPOSIT.

Each student on entering College should deposit with the Treasurer not less than $50.00, to pay the expenses of fees, one month's board, uniform, books, etc.

UNIFORM.

A uniform of Cadet gray cloth is prescribed which all under-graduate students are required to wear during the session. The uniforms are made at Auburn, of cloth manufactured at the Charlottesville mills. The suit, including cap, costs about $19.00; the dress coat $10.00 to $11.00. It is neat and serviceable and less expensive than ordinary clothing.

SURGEON.

The Surgeon is required to be present at the College daily, to visit the Cadets at their quarters who are reported sick, and to give all requisite medical attention without other charge than the regular Surgeon's fee, paid on entering College.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of College fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when approved by the President. This approval is given only for necessary expenses, as stated in the Catalogue, unless specially requested in writing by the parent.

The attention of parents is called to the following law enacted by the Trustees:

When a student matriculates, all money required to pay the College fees and other moneys in his possession must be deposited with the Treasurer, unless the President shall receive special instruction from the parent and guardian to the contrary.

ACADEMIC YEAR.

The Academic Year commences on Wednesday, 10th September (second Wednesday after first Monday), and ends on Wednesday, 10th June (the second Wednesday after the first Monday), which is Commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 23d of December; the second term begins January 1st and ends March 28th; the third term continues from March 30th to the close of the session.

RESOLUTION OF THE TRUSTEES.

The following resolution was adopted by the Trustees;

That in view of increased facilities for instruction in Agriculture and the technical departments of education now possessed by this College, especially in the department of Mechanic Arts, made possible by the recent donation from the State, the Faculty are authorized, in addition to the legal name of this College, to print on the Catalogue the words ALABAMA POLYTECHNIC INSTITUTE, as significant of the expanded system of practical instruction in industrial science in the course of education now provided for.

DONATIONS TO MUSEUM.

Valuable contributions have been made to the museum by the following persons:

Mr. Albert Strassburger, of Montgomery, a number of excellent specimens of minerals to be added to the "Strassburger collection."

The Smithsonian Institute, by the request of Senator John T. Morgan, fifty-seven specimens of well selected minerals

The Department of Agriculture, pressed and mounted specimens of grasses and grapes.

Mr. V. Frankperter, of Montgomery, Ala., a specimen of quartz crystal.

Dr. Jerome Cochran, of Montgomery, Ala., specimens of Indian relics and sea-shells donated to the "Strassburger collection."

Mr. George H. Lamar, specimens of crystalized gypsum from the West.

University of Alabama, a collection of fossils from the Tertiary of the State.

Mr. Erskine Ramsay, mining engineer of the Pratt mines, specimens of diamond drill borings and coal specimens.

DONATIONS TO LIBRARY.

Smithsonian Institute, Reports, 4 vols.

Chief of Engineers, Reports of Department, 2 vols.

Secretary of Interior, Education, Coasts and Geodetic Survey, etc., 42 vols.

Hon. Jno. T. Morgan, Public Documents, 8 vols.

Hon. James L. Pugh, Public Documents, 12 vols.

Hon. W. C. Oates, Congressional Record, War of Rebellion, etc., 10 vols.

CALENDAR 1890-91.

Session begins	Wednesday, Sept. 10, 1890.
Examination for admission	Wednesday, Sept. 10, 1890.
First term begins	Wednesday, Sept 10, 1890.
First term ends	Tuesday, Dec. 23, 1890.
Second term begins	Thursday, Jan 1, 1891.
Second term ends	Saturday, March 28, 1891.
Third term begins	Monday, March 30, 1891.
Third class exercises	Friday, May 1, 1891.
Final examinations begin	Monday, May 18, 1891.
Commencement sermon	Sunday, June 7, 1891.
Annual meeting of Trustees	Monday, June 8, 1891.
Military exercises	Monday, June 8, 1891.
Celebration of Literary Societies 8 P. M.	Monday, June 8, 1891.
Second class celebration	Tuesday, June 9, 1891.
Alumni oration	Tuesday, June 8, 1891.
Address before Literary societies	8 P. M., Tuesday, [June 10, 1891.
Commencement day	Wednesday, June 10, 1891.

AGRICULTURAL

Experiment Station

—OF THE—

AGRICULTURAL AND MECHANICAL COLLEGE

—OF—

ALABAMA.

Agricultural Experiment Station.

BOARD OF VISITORS,

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION:

J. G. GILCHRIST,
R. F. LIGON,
J. B. MITCHELL.

BOARD OF DIRECTION—OFFICERS OF THE STATION:

W. L. BROUN	President.
J. S. NEWMAN	Director and Agriculturist.
N. T. LUPTON	Vice-Director and Chemist.
*P. H. MELL	Botanist.
G. F. ATKINSON	Biologist.

ASSISTANTS.

ISAAC ROSS, First Assistant Agriculturist in charge of Live Stock and Dairy.

JAMES CLAYTON	Second Assistant Agriculturist.
J. T. ANDERSON, PH. D	First Assistant Chemist.
L. W. WILKINSON, M. SC	Second Assistant Chemist.
P. L. HUTCHISON, B. SC	Third Assistant Chemist.
A. M. LLOYD, B. SC	Assistant Botanist.

*Prof. Mell has also charge of Meteorological Observations.

WORK OF THE STATION.

J. S. NEWMAN, DIRECTOR AND AGRICULTURIST.

The work of the year 1889 has been partly printed in eight bulletins.

Bulletin No. 3, January, 1889, reported experiments with corn, sweet patatoes, ground peas, turnips and grapes, analyses of fertilizers, soils, feed stuffs, a continued classification and description of the woods of the State, and a meteorological report.

Bulletin No. 4 contained practical instructions for the cultivation and management of strawberries, grapes and raspberries.

Bulletin No. 5 contained experiments with fertilizers under cotton, a comparison of the productiveness and general merits of different varieties of cotton, and an inquiry as to the needs of typical soils of the State. These were collected, soil and subsoil, placed under identical circumstances, and treated with different elements and combinations of elements of plant food, and the response in the growth and productiveness of the cotton plants noted. It also contained results of experiments in pig feeding, description of barn and dairy, the report of experiments with different home products, as butter-producers, analyses of soils, fertilizers and feed stuffs, and a report of the temperature of the soil at depths from one inch to ninety inches, and atmospheric conditions and rainfall.

Bulletin No. 6 embodied a report of the Botanist upon "grasses and their cultivation," with an account of their economic value as shown by their nutritive constituents found by chemical analyses.

Bulletin No. 7 contained report of experiments with different species of vegetables, and their classification with reference to the merits of the respective varieties; results of some practical experiments with different methods of setting milk, and a comparison of the economy of the DeLaval separator with the Cooly system of creamery, with results in favor of the DeLaval; a report of the meteorological conditions, and a circular announcement of the Biologist, indicating the line of work to be pursued.

Bulletin No. 8 contained a discussion of the formation and composition of soils; the composition of plants; the sources of phosphoric acid, potash and nitrogen employed in the manufacture of commercial fertilizers; the value and uses of several home manurial resources; the manufacture of fertilizers; the manipulation of composts; analyses of commercial fertilizers and some natural guanos.

Bulletin No. 9 consisted of a preliminary report of the investigations of nematode root-galls, the injury effected by them to certain cultivated plants and noxious weeds, with some suggestions as [to means to be used to diminish the injurious effects of this insidious enemy.

Bulletin No. 10 embodied a report of progress in grape culture upon the station grounds, including methods of preparing, fertilizing and cultivating the soil for this fruit, with a practical classification and description of the varieties which have fruited during the last two years.

DEPARTMENT OF CHEMISTRY.

N. T. LUPTON.

The working force in the Chemical Department consists of the chemist in charge and three assistants. In addition to the regular work in connection with the Station, this Department is charged with the chemical work of the State Department of Agriculture. This includes the analyses of such fertilizers, minerals and products of all description as, in the judgment of the Commissioner of Agriculture, are necessary for the development of the industrial resources of the State.

ANALYSES MADE.

SUBSTANCES.	NO. OF SAMPLES.
Acid phosphates with nitrogen and potash	171
Acid phosphates with potash	3
Acid phosphates	58
Natural phosphates	47
Marls	11
Miscellaneous substances	48
Feeding stuff	20
Milk	76
Butter	8
Pea vines	4
Roots of pea vines	4
Soils	9
Total	459

Under the head of miscellaneous substances are included cotton-seed, cotton-seed meal, cotton-seed ash, kainit, muriate, nitrate, ammonia, sulphate, tankage, etc.

In addition to the quantitative work above mentioned, a large number of mineralogical specimens, the character of which could be ascertained by simple qualitative tests, were examined and their values determined.

A special bulletin was prepared during the year on commercial fertilizers. It embraced a brief discussion of the composition and formation of soils, their deterioration, the composition of plants, of commercial fertilizers, the sources of materials used in the manufacture of fertilizers, the estimation of commercial values, and the preparation of composts.

DEPARTMENT OF BOTANY AND METEOROLOGY.

P. H. MELL.

The work conducted in this department was of the following character:

I.—A large number of species of grasses were collected during the summer and spring, analyzed and studied, and descriptions, with methods of cultivation, were published.

II.—Sections of the wooded plants of the State are being prepared and studies made of them.

III.—During the year many experiments have been made on the cotton plant by means of the microscope and frequent field observations. Twenty-three varieties were included in these investigations. A number of cross sections were made of the fibres, to determine the degree of maturity. Careful examinations were made, also, to determine the effect produced upon the cellular structure of the plant by certain kinds of fertilization and cultivation; to note, also, if any material difference actually existed between the various brands of cotton sold in the market under the many different names.

IV.—Much material has been collected during the past year for a bulletin on "Noxious Weeds;" the work of examining and classifying these plants has been undertaken.

V.—Daily observations of meteorological instruments, and on the changes of the atmosphere, have been carried on during the entire year. The meteorological outfit consists of the following instruments:

1. Maximum thermometer.
2. Minimum thermometer.
3. Dry-bulb thermometer.
4. Wet-bulb thermometer.

5. Barometer.
6. Anemoscope.
7. Rain Gauge.
8. Solar Radiator.
9. Terrestrial Radiator.
10. Thirty soil thermometers, ranging in depth from one to ninety-six inches.
11. Anemometer, Robinson's make, with electric recording attachment.

DEPARTMENT OF BIOLOGY.

GEORGE F. ATKINSON.

Organization.—The Department of Biology was organized during the latter part of the year. Owing to the necessity for the careful selection and importation of special apparatus and books, together with the fact that the suite of rooms for the biologist has but recently been in a condition for occupation, few investigations could be attempted. There are four rooms in the new building devoted to this department; a suite of three rooms on the third floor, as follows: an office, laboratory room and lecture room, where subjects of practical interest are presented to the classes, and a room in the basement devoted to the manipulation of coarser material from collections in preparing it for the laboratory and cabinet, and for special cultures. The work of furnishing these rooms and mounting the special apparatus is in progress.

The office, besides the ordinary furniture, contains cases for an herbarium, where will be preserved specimens illustrating the fungi injurious to plants, and a cabinet illustrating the insects collected; also a well selected small library of special literature on these practical subjects.

The more prominent pieces of apparatus in the laboratory are as follows:

One Rohrbeck's No. 10 Vegetative apparatus.
One Rohrbeck's Steam Sterilizing apparatus, No. 1, D.
One dry oven.
One Pasteur water filter.
One balance.
Micrometer.
Four Leitz microscopes, No. 6.

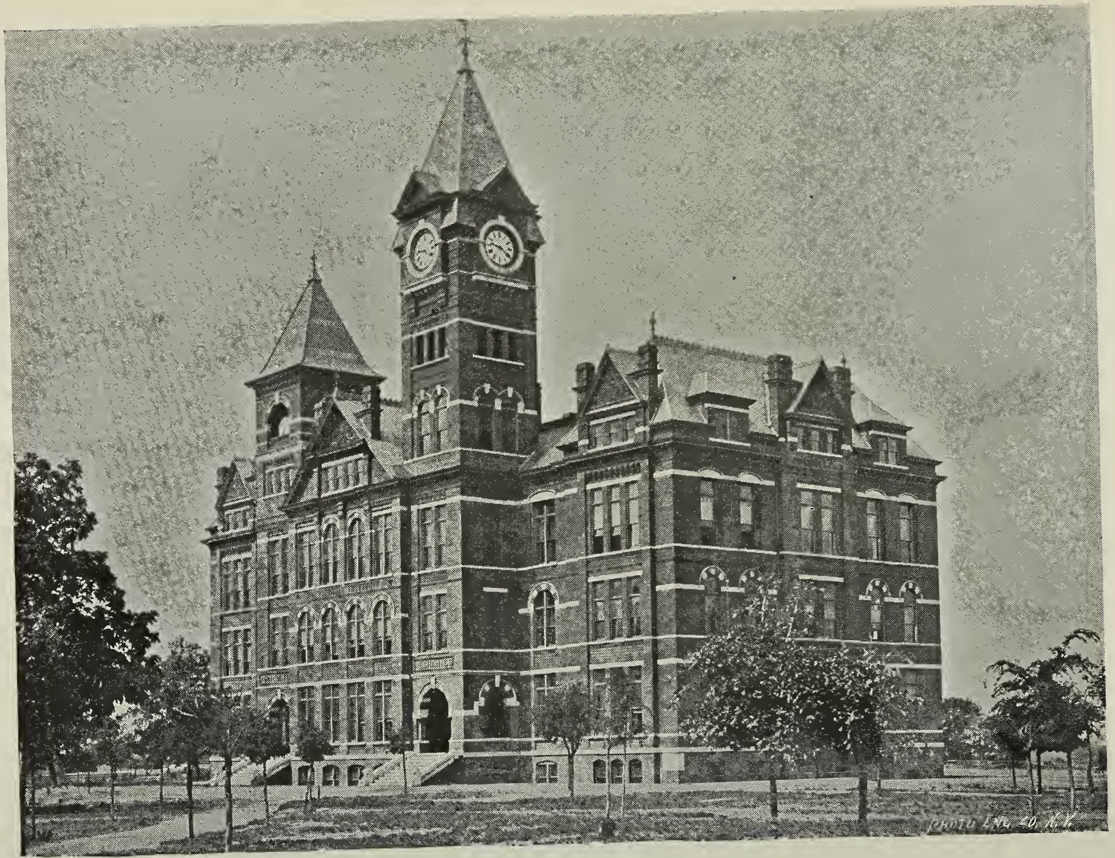
One Zeiss microscope, No. 2*a* stand, with the 2 *m m* a apochromatic objective, a series of compensation oculors and objectives, triple nose piece, Abbe Condenser, long arm camera, etc.

Besides there is a large list of vessels and smaller pieces of apparatus, reagents, etc., essential in such a laboratory.

On one side of the laboratory is partitioned off a cult[illegible]m occupied by the apparatus for use in growing certain fungi [illegible]nection with the investigations.

There has been made quite an extended original preliminary study of a root-gall nematode, *Heterodera* radicicola, which is doing serious damage to some crops in various parts of the South. The results of this study were published in a bulletin, as a preliminary report on Nematode Root-Galls, including the life history and metamorphosis of the worm which is the cause of the disease.

LIBRARY
OF THE
UNIVERSITY of ILLINOIS



AGRICULTURAL AND MECHANICAL COLLEGE.

Alabama Polytechnic Institute.

CATALOGUE

OF THE

STATE
Agricultural and Mechanical
COLLEGE.

ALABAMA POLYTECHNIC INSTITUTE.

1890-91.

AUBURN, ALABAMA.

MONTGOMERY, ALA.:
THE BROWN PRINTING CO., PRINTERS AND BINDERS.
1891

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Professor of Civil Engineering and Drawing.

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Professor of Agriculture and Director of Experiment Station.

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Professor of General and Agricultural Chemistry and State Chemist.

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Commandant and Professor of Military Science.

GEORGE H. BRYANT, M. E. (Mass. Inst. Technology),
Director of Laboratory and Instructor of Mechanic Arts.

GEORGE F. ATKINSON, Ph. B.,
Professor of Biology.

CHARLES H. BARNWELL, A. M.,
Adjunct Professor of Modern Languages and History.

L. W. WILKINSON, B. Sc.,
Assistant in Chemical Laboratory.

J. J. WILMORE, M. E.,
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Assistant Instructors in Mechanic Arts.

M. DOWNER PACE, M. Sc.,
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DANIEL GILLIS, B. Sc.,
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Surgeon.

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Librarian and Recording Secretary.

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Corresponding Secretary.

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BOARD OF VISITORS.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION:

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OFFICERS OF THE STATION.

W. L. Broun	President
J. S. Newman	Director and Agriculturist
N. T. Lupton	Vice-Director and Chemist
P. H. Mell*	Botanist
G. F. Atkinson	Biologist

ASSISTANTS.

Isaac Ross	First Asst. Agriculturist in Charge of Live Stock and Dairy
Jas. Clayton	Second Assistant Agriculturist
J. T. Anderson, Ph. D	First Assistant Chemist
L. W. Wilkinson, M. Sc	Second Assistant Chemist
J. F. Wilkinson, B. Sc	Third Assistant Chemist
R. E. Noble, B. Sc	Fourth Assistant Chemist
A. M. Lloyd, B. Sc	Assistant Botanist

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* Prof. Mell has charge of the Meteorological Observations.

OBJECT OF THE COLLEGE.

The leading object of the College, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and the applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts, so far as the facilities at its disposal will permit; and at the same time the discipline obtained by the study of languages and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special or technical instruction given is thus based on a sound, general education.

The College, in fact, has become a distinctive school of industrial science—or POLYTECHNIC INSTITUTE—a title which by resolution of the trustees is permitted to be inscribed on the catalogue—and work of great value to the youth of the State is now being accomplished by fitting them, by a thorough science-discipline, in which handicraft in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christion training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACILITIES FOR INSTRUCTION.

The College now possesses facilities for giving laboratory instruction in applied science in the following departments :

I.—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres and is supplied with illustrated specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in presence of the objects discussed, and during the year exercises in practical agriculture are given the students who enter upon this course of study.

II.—IN MECHANIC ARTS.

The laboratory of Mechanic Arts is used as an auxiliary in industrial education, as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the College each student enters this school, and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to thoroughly educate the student for the duties of life, whatever his vocation may be. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall 90 x 50 feet, and is provided with a twenty-five horse power Corliss engine, with indicator, a planer, circular saw, band-saw, two scroll saws, a buzz planer, twenty stands with lathes, with full sets of lathe and carpentry tools required for instruction.

A brick building with two rooms, each 30x35 feet has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, the other with a cupola furnace, having a capacity of 1,000 pounds, a core oven, moulding benches and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from the engine.

The machine department is equipped with eight engine lathes, one speed lathe, one 20-inch drill press, one post drill, one shaper, one five-foot planer, one universal milling machine, a corundum tool-grinder and small emery grinder.

The chipping and filing department is arranged with benches and vices for twelve students.

The Weston dynamo, used at present for lighting the halls, is located in a room adjoining the Mechanic Art laboratory, and is run by a ten-horse power engine, constructed by the students in the Mechanic Arts.

It is designed to supply the different laboratories with electricity by this dynamo.

III.—IN PRACTICAL CHEMISTRY.

The new chemical laboratory is supplied with new and modern apparatus, and in its entire equipment affords excellent facilities for instruction in practical chemistry.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that will accommodate sixty students, and lecture room with capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

It is equipped with the improved modern appliances necessary for instruction and investigation.

IV.—IN PHYSICS.

In the new College building provision will be made for laboratory work in the department of physics. Special rooms in the basement are appropriated for this purpose, and it is designed to equip them with all necessary appliances. An improved testing machine, of 35,000 pounds capacity, has recently been purchased of Riehle Bros. for this laboratory.

V.—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VI.—IN BOTANY.

In the work of the agricultural experiment station, investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VII. —IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

VIII.—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, etc., is provided for the use of the students, and the customary exercises in the field are given.

IX.—IN DRAWING.

All the students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, that will accommodate fifty students, is provided with tables, lock boxes, etc.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

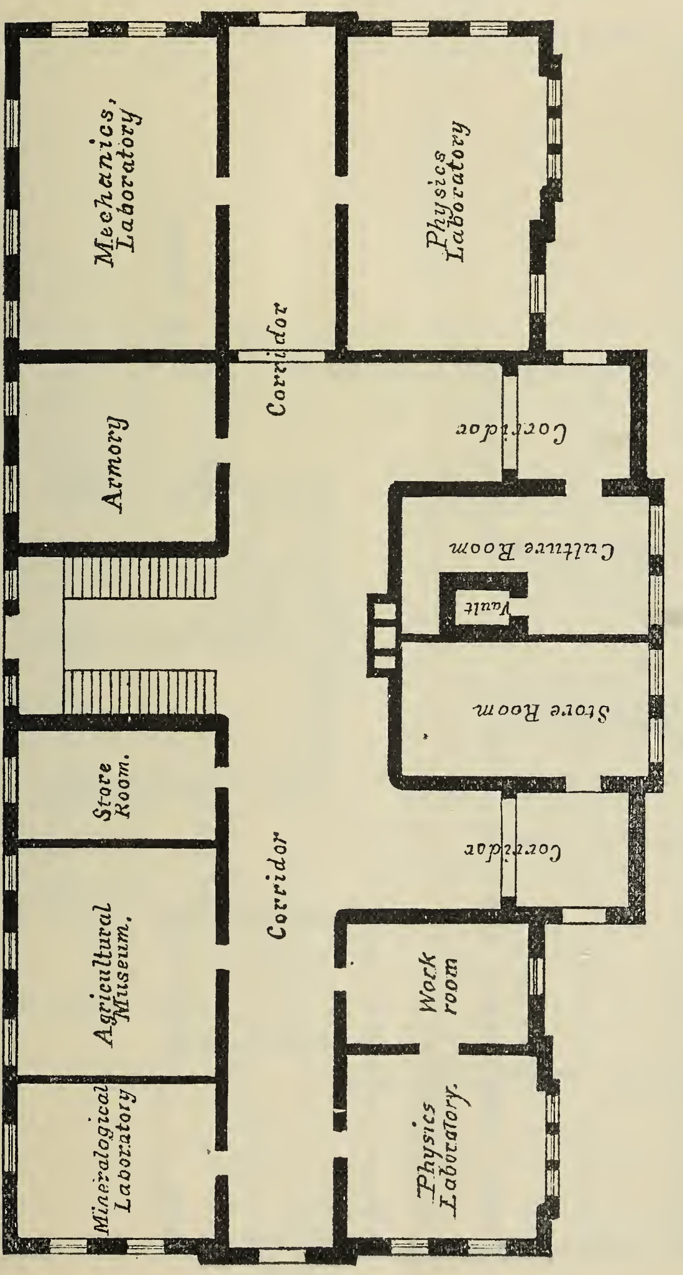
This department is under the charge of Lieut. J. B. McDonald, 10th Cavalry, U. S. A.

It has recently been supplied with new cadet muskets and accoutrements for the corps, and, for artillery practice, with two three-inch rifle guns, carriages and limbers.

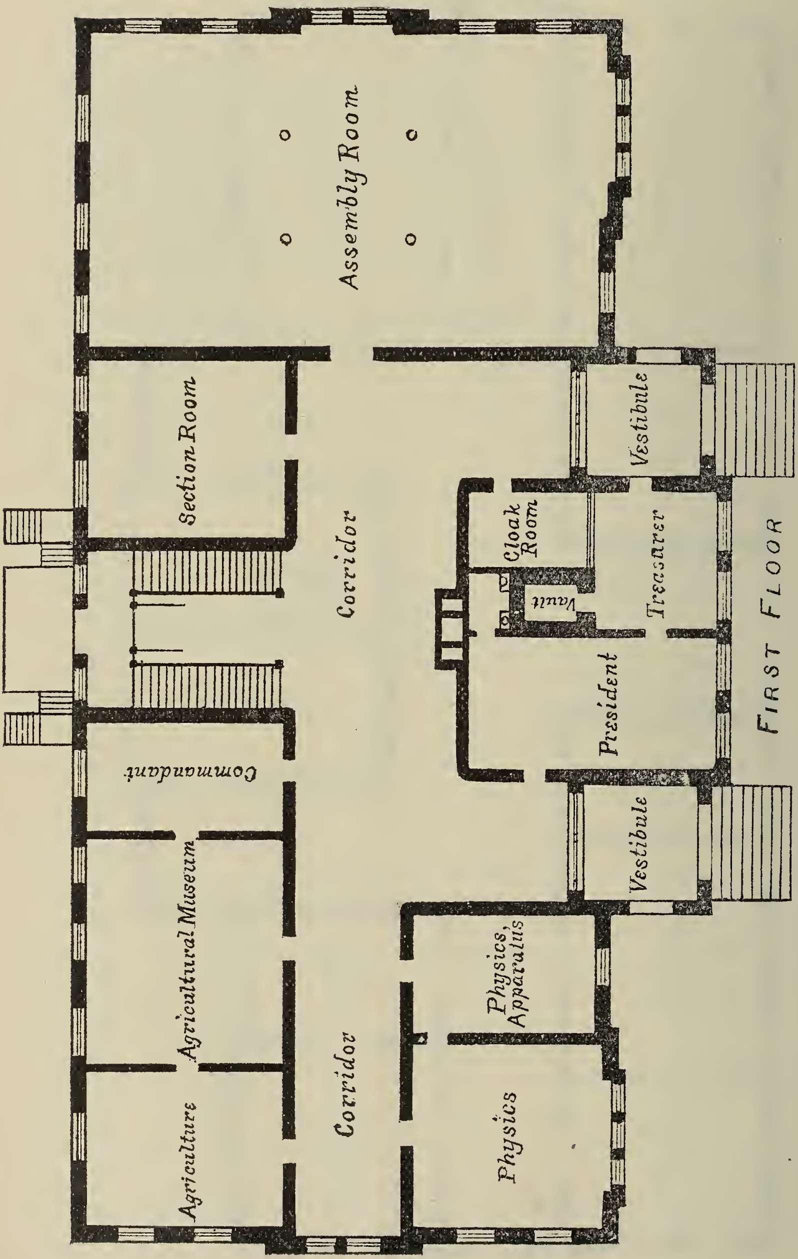
COLLEGE BUILDING.

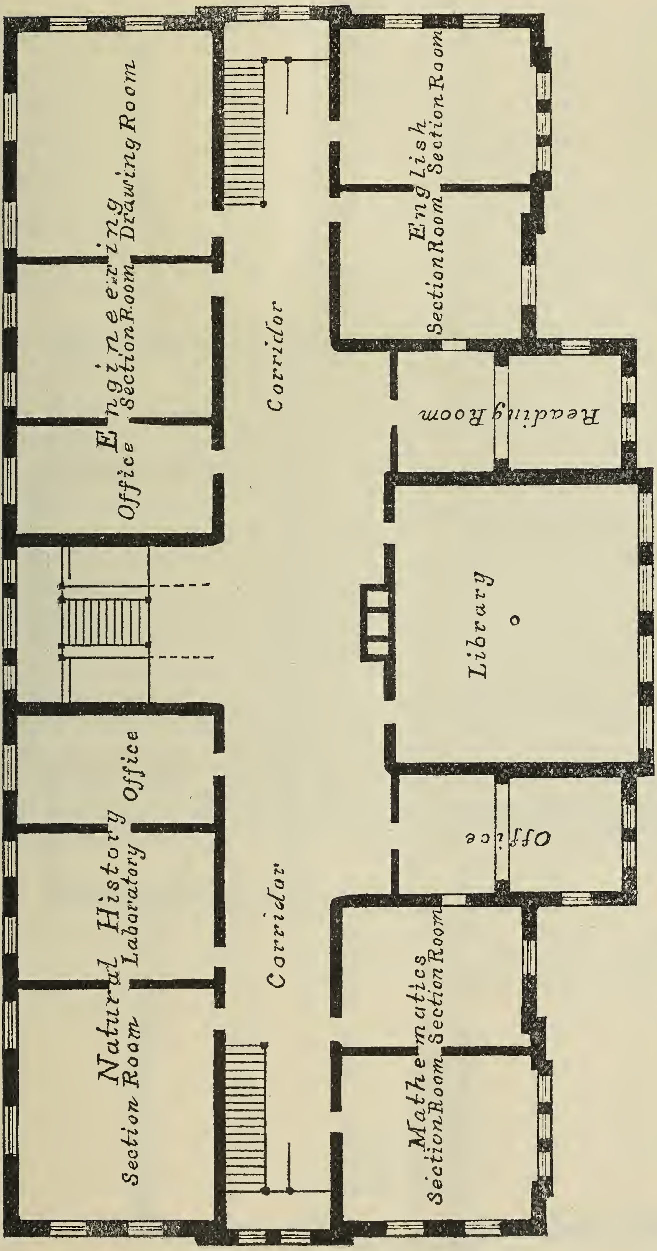
The frontispiece is a representation of the recently constructed main college building. It is 160 by 71 feet, and contains, exclusive of the basement floor, thirty-five rooms. This building is not used for dormitories for students, but is appropriated for purposes of instruction and investigation.

It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc. The illustrations of the four floors on the following pages indicate the uses to which the rooms have been assigned.

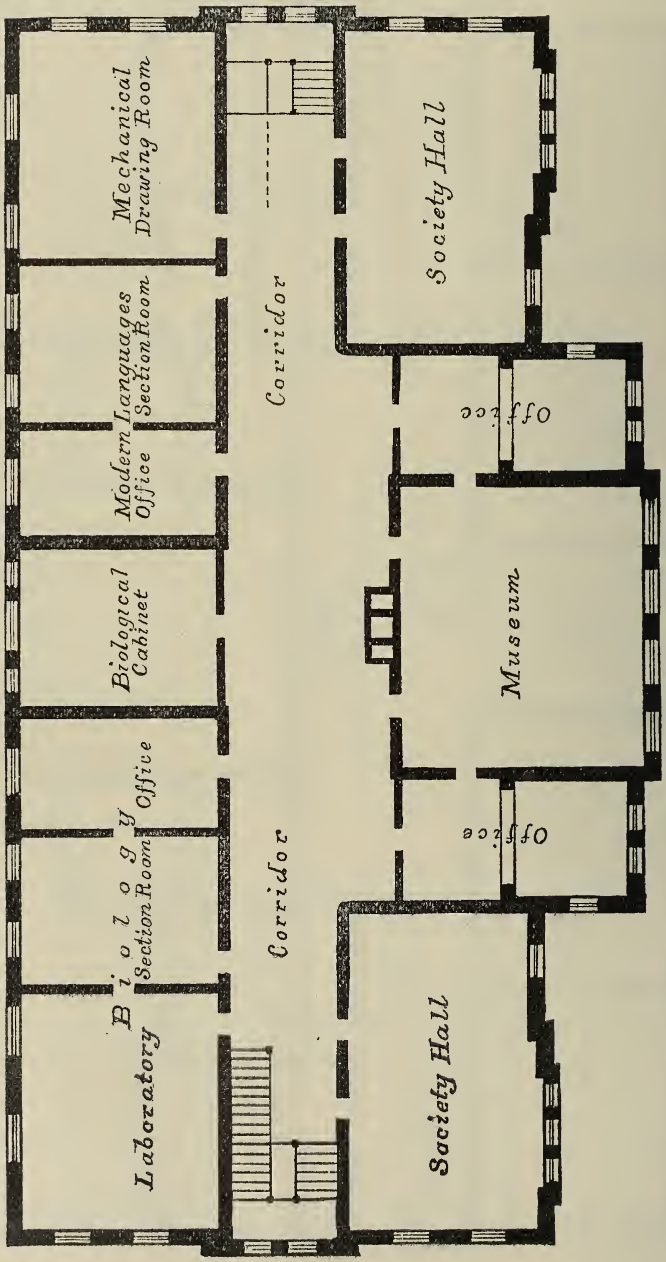


BASEMENT FLOOR

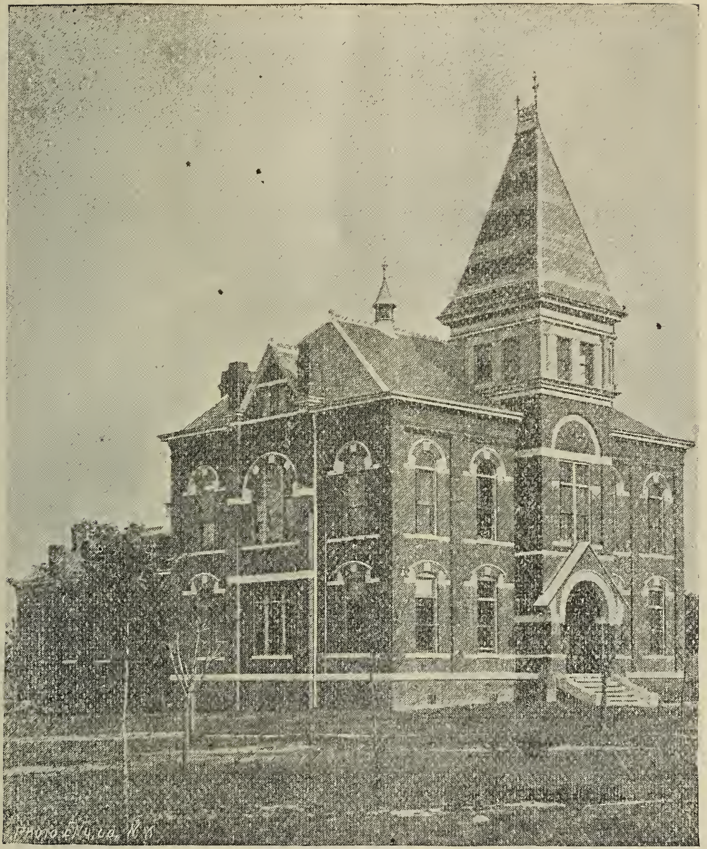

Assembly Room
Section Room
Corridor
Commandant
Agricultural Museum
Agriculture
Corridor
Cloak Room
Vault
Treasurer
President
Vestibule
Vestibule
Physics, Apparatus
Physics
FIRST FLOOR



SECOND FLOOR

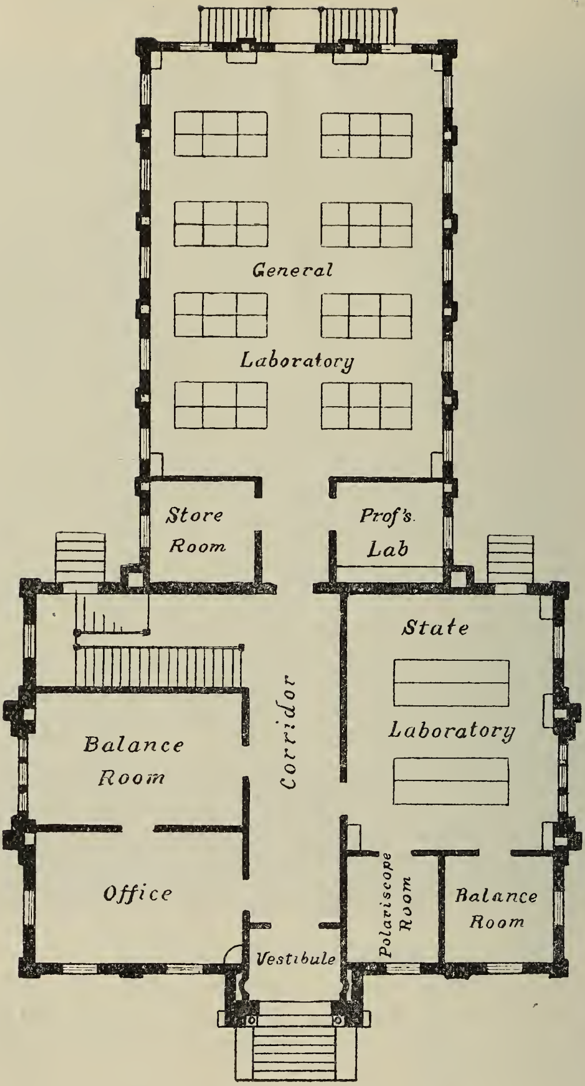

Mechanical Drawing Room
Society Hall
Corridor
Modern Languages Section Room
Office
Office
Biological Cabinet
Museum
Biology
Office
Section Room
Office
Corridor
Laboratory
Society Hall

THIRD FLOOR



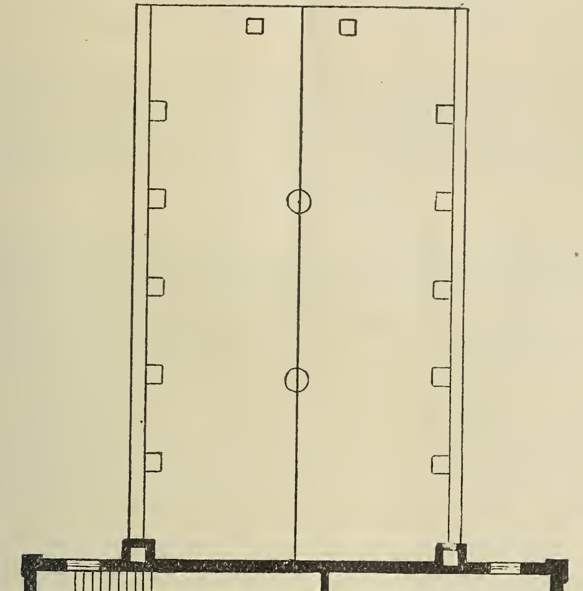
CHEMICAL LABORATORY.

The chemical laboratory is a handsome two-story structure, 40 by 60 feet, with a rear projection 35 by 60 feet of one story and basement. The exterior is of pressed brick, with cut stone trimmings, and terra-cotta ornamentation.



FIRST FLOOR

The first room to the left is the office of the professor, to the rear of which is the balance-room. On the right, extending the whole length of the floor, is the State laboratory and laboratory for research. Two small rooms are cut off from this, one a balance-room, and the other for the spectroscope and polariscope. Leading from the rear of the main hall is the door which enters the large laboratory for general work. Two rooms are cut off from this—one for combustion furnaces and the other a private working-room.



SECOND FLOOR.

In the basement are ample accommodations for assaying and storage.

The main laboratory will accommodate sixty students, and contains improved working-tables, with water, gas and every necessary appliance for chemical work. Niches in the wall opposite each working-table, with hoods, where necessary, connect with flues, and furnish the best possible means of escape for deleterious vapors, while ventilators in the ceiling furnish additional means for getting rid of noxious gases, The pitch is sixteen feet in the clear, with paneled ceiling of oiled southern pine. The rooms are wainscotted throughout and finished in natural wood.

The second story contains a lecture-room and room for gas analysis. Around this lecture room are cases for containing crude and manufactured products, illustrating the subjects of agricultural and industrial chemistry, which are prominent subjects taught in this institution.

LANGDON HALL.

This is a two-story building, ninety by fifty feet. The second story is the audience hall, used for Commencement and other public occasions.

The first story is appropriated to the laboratory of Mechanic Arts.

GRADUATES IN 1890.

CLASS OF 1890.

WITH DEGREE OF BACHELOR OF SCIENCE. (B. SC.)

Benjamin Cheney Abernethy	Florida.
James William Bivins	Lee.
Wilmer Callaway	Lee.
Walter Girard Cook	Lowndes.
George Woodhull Emory	Lee.
Stonewall Jackson Emory	Lee.
Francis Maury Fontaine	Georgia.
Daniel Gillis	Georgia.
William Groce Harrison	Talladega.
Robert Edward Daniel Irvin	Lee.
John Hammond Little	Lee.
Wilmot Bivins Matthews	Lee.
Frank Davis Milstead	Elmore.
John Milton	Florida.
Robert Earnest Noble	Calhoun.
Reuben Hayne Poole	Georgia.
Percy Willett Terry	Jefferson.
George Houston Waring	Georgia.
James Fielden Wilkinson	Dale.

WITH DEGREE OF CIVIL ENGINEER. (C. E.)

M. Downer Pace, B. Sc	Macon.
James Quarles, A. B	Clay.

WITH DEGREE OF MINING ENGINEER. (M. E.)

Bolling Hall Crenshaw, B. Sc	Butler.
Arthur St. Charles Dustan, B. Sc	Virginia.

DISTINGUISHED STUDENTS.

AWARDED CERTIFICATES IN 1890.

The students of each class who secure a grade above 90 in three or more subjects are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1890:

SENIOR CLASS.

Benjamin Cheney Abernethy	Florida.
James William Bivins	Lee.
George Woodhull Emory	Lee.
Daniel Gillis	Georgia.
Frank Davis Milstead	Elmore.
Percy Willett Terry	Jefferson.
James Fielden Wilkinson	Dale.

JUNIOR CLASS.

Lawrence Ernest Baker	Jefferson.
Harmon Benton	Barbour.
Frank Jarvis Bivins	Lee.
Seaborn Jesse Buckalew	Chambers.
Walter Edward Fitzgerald	Georgia.
Charles Bowls Glenn	Lee.
Clifford Leroy Hare	Lee.
Beverly Franklin Harwood	Perry.
Charles Cicero Johnson	Coosa.
John Calvin Kimball	Georgia.
Isaac Isaiah Moses	Georgia.
William Henry Oates	Mobile.
Petit Reynolds	Macon.

SOPHOMORE CLASS.

Elbert Cathey Averyt	Shelby.
Leigh Stafford Boyd	Lee.
Charles Allen Brown	Sumter.
Joseph Little Burr	Georgia.
Henry Ticknor DeBardeleben	Jefferson.
Henry Farris Dobbin	Florida.
Eugene Hamiter Graves	Barbour.
Raleigh Williams Greene	Lee.
Raleigh Frederick Hare	Lee.
Louis Philip Heyman	Georgia.
Arthur Lynn Jones	Autauga.
Glen McCulloh	Lee.
Benjamin Walter McCutchen	Lee.
Frank McLemore Moseley	Montgomery.
Walter Evan Richards	Chambers.
Robert Jefferson Trammell	Lee.
David Edwin Wilson	Jefferson.

FRESHMAN CLASS.

Robert Lee Gordon Bivins	Lee.
Walter Scott Crump	St. Clair.
George Alpheus Dennis	Chilton.
Hamilton Rowan Johnstone	Mobile.
Charles David Kline	Texas.
James Monroe Little	Lee.
Charles Henry Smith	Georgia.
Rosser Colbert Spratling	Chambers.
William Van Antwerp	Mobile.

CATALOGUE OF STUDENTS

FOR THE SESSION 1890-91.

GRADUATE STUDENTS.

[*Residence is Alabama when State is not named.*]

NAME.	RESIDENCE.
Daniel Gillis	Georgia.
Pleasant Lee Hutchinson	Georgia.
John Hammond Little	Lee.
Andrew Manly Lloyd	Lee.
Robert Earnest Noble	Calhoun.
James Miles Quarles	Clay.
James Fielden Wilkinson	Dale.

SENIOR CLASS.

Lawrence Earnest Baker	Jefferson.
Harmon Benton	Barbour.
Frank Jarvis Bivins	Lee.
Seaborn Jesse Buckalew	Chambers.
James Albert Cox	Lee.
James Nathaniel Dean	Montgomery.
Walter Edward Fitzgerald	Georgia.
William Thomas Glass	Georgia.
Charles Bowls Glenn	Lee.
Clifford Leroy Hare	Lee.
Beverly Franklin Harwood	Perry.
Charles Cicero Johnson	Coosa.
John Calvin Kimball	Georgia.
Frank Allemong Lupton	Lee.
William Audley Marshall	Georgia.
Alexander Dowling McLennan	Barbour.
William Henry Oates	Mobile.

Petit Reynolds	Macon.
William Edward Reynolds	Macon.
Robert Clanton Smith	Chambers.
Clanton Ware Williams	Montgomery.

JUNIOR CLASS.

William Sayre Allen	Montgomery.
Archie Scruggs Averett	Georgia.
Earl Averitt	Jefferson.
Elbert Cathey Averyt	Shelby.
Leigh Stafford Boyd	Lee.
Charles Allen Brown	Sumter.
Jabob Thompson Bullen	Montgomery.
Walter Bartow Clay	Montgomery.
Amos Hill Cox	Lee.
John Gereardt Crommelin	Montgomery.
Jesse Lock Culver	Bullock.
Henry Lee Davidson	Montgomery.
George William Dantzler	Autauga.
Henry Ticknor DeBardeleben	Jefferson.
Henry Farris Dobbin	Florida.
William Francis Feagin	Barbour.
James Edward Gachet	Lee.
Eugene Hamiter Graves	Barbour.
Raleigh Williams Greene	Lee.
Raleigh Frederick Hare	Lee.
Louis Philip Heyman	Georgia.
Andrew Silous Horn	Clay.
Thomas Pearson Hutchinson	Georgia.
Arthur Lyne Jones	Autauga.
Clifton Arthur Jones	Lee.
Edward Oscar Knox	Pike.
Harold Magruder	Georgia.
Robert Dibrell McAlister	Georgia.
Glenn McCulloh	Lee.
Duncan McDougald	Georgia.
Alfred Huger Moses	Colbert.

Frank McLemore Mosely	Montgomery.
Louis Sinclair Munford	Hale.
Leonidas Warren Payne	Lee.
Frank Peabody	Georgia.
Charles Teed Pollard	Montgomery.
Walter Evan Richards	Chambers.
James L. Richey	Calhoun.
Wyche Jackson Robinson	Chambers.
Robert Lee Shipp	Georgia.
Edward Broadus Smith	Opelika.
Signor Sydney Strong	Georgia.
George Adams Thomas	Montgomery.
Sheldon Lynn Toomer	Lee.
Robert Jefferson Trammel	Lee.
Sydenham Benjamin Trapp	Calhoun.
David Marshall Walker	Marengo.
David Lewis Whetstone	Elmore.
David Edwin Wilson	Jefferson.
Thomas Felton Wimberly	Lee.

SOPHOMORE CLASS.

Theodore Benjamin Bethea	Montgomery.
Wallace Reverdy Bishop	Talladega.
Robert Lee Gordon Bivins	Lee.
Francis Marshall Boykin	Montgomery.
Massey Robert Burton	Lee.
Clifford Fontaine Clopton	Montgomery.
Joseph Johnstone Crawford	Georgia.
Charles Henry Crowder	Montgomery.
Walter Scott Crump	St. Clair.
Union Anderson Cullbreath	Lee.
Clarence William Daugette	Lee.
Mims Davis	Autauga.
Joel Dumas	Wilcox.
John Harris Dunstan	Virginia.
Daniel Benjamin Edwards, jr	Dallas.
Thomas Preston Flanagan	Lee.

Thomas Gardner Foster	Montgomery.
John Halifax Flynn	Etowah.
George Wilson Harrison	Green.
William Frazier Herbert	Montgomery.
Joseph Andrew Herron	Montgomery.
John Henry Holt	Georgia.
Mims Lamar Howard	Autauga.
William Forney Hughes	Etowah.
Hamilton Rowan Johnstone	Mobile.
Amos Wesley Jones	Madison.
Byron Watts Jones	Lee.
Thomas Litchfield Kennedy, jr	Lee.
Jere Clements King	Butler.
Charles David Kline	Mexico.
James Monroe Little	Lee.
James Berry Loveless	Marshall.
Homer Bedford Lusk	Marshall.
Nicholas Barnett Marks	Kentucky.
Frank Inman McRee	Georgia.
Edward Baker Mell	Georgia.
Hampton Knox Miller	Talladega.
Herbert Abner Milner	Jefferson.
Hugh Nelson	Dallas.
Minor Evans Nicholson	Georgia.
John Austin Norton	Montgomery.
Oscie Kyle Parker	Elmore-
Henry Lee Porter	St. Clair.
Joseph Samuel Pou	Lee.
Sidney Powell Reaves	Georgia.
Walter Merritt Riggs	So. Carolina.
John Shelton Robinson	Jefferson.
Logan Abner Siebold	Marshall.
Guy Allen Shafer	Perry.
Charles Henry Smith	Georgia.
Eugene Aglette Smith	Bullock.
John Howard Smith	Georgia.
Linton Sparks Smith	Georgia.

Rosser Colbert Spratling	Chambers.
William Simeon Street	Tallapoosa.
William Augustus Thomas	Chambers.
Wyeth Todd	Marshall.
William Van Antwerp	Mobile.
Joel Franklin Webb	Coosa.
Charles Hutchinson Weston	Colbert.
John Mitchel Woolley	Georgia.

FRESHMAN CLASS.

Felix Reuben Allison	Lee.
George Smith Anderson	Lee.
John Frank Anderson	Georgia.
Champ Seabury Andrews	Tennessee.
Harvey Armstrong	Missouri.
Isaac Alfred Baker	Jefferson.
Joseph Johnson Beggs	Jefferson.
Richard Isaac Betts	Monroe.
Henry Harrington Bookhart	Georgia.
William DeLamar Clayton	Lee.
George Lee Cleere	Franklin.
Howell Hunter Cherry	Lee.
Joseph Anderson Coleman	Georgia.
Rosberry Covington Conner	Macon.
William Lonie Crew	Coosa.
Henry Crommelin	Montgomery.
Walter Caldwell Darwin	Madison.
Palmer Payne Daugette	Lee.
Charles Fairchild DeBardeleben	Jefferson.
Rufus Thomas Dorsey, jr	Georgia.
Ebenezer Westley Doughty	Georgia.
Flurry Pellicer Dowe	Montgomery.
Joseph Addison Driver	Perry.
Waverly Goode Duggar	Hale.
Julius Confree Dunham	Montgomery.
James Dunlap	Madison.
Charles Dunlap	Madison.

John Thomas Eckford	Lee.
Turner Thomas Edmunds	Georgia.
Wilbur Thomas Edwards	Tallapoosa.
David Silas Flanagan	Lee.
Cliff Foy	Barbour.
Robert Cherry Foy	Barbour.
James Thaxton Gillespie	Jefferson.
John Samuel Godwin	Barbour.
Richard Billups Going	Jefferson.
James Perry Grant	Barbour.
Eddie Connerly Gregory	Jefferson.
John Earnest Griffin	Lee.
Crossland Clarence Hare	Lee.
Augustus J. Harris	Morgan.
James Clanton Haygood	Montgomery.
Arnold Whitfield Herren	Elmore.
William Marion Hight	Calhoun.
Harry Holgate	Georgia.
Julius Cicero Hudson	Lee.
Robert Ford Hunter	Georgia.
Jeremiah Jackson	Lee.
Jacob Samuel Johnson	Autauga.
William Young Johnstone	Barbour.
Henry Clay Jones	Montgomery.
John Fletcher Jones	Autauga.
Remer Young Jones	Georgia.
Welborn V. Jones	Lee.
Madison Leonard	Shelby.
Orrin Joseph McCarley	Chambers.
Thomas McElrath	Coosa.
Patrick Roland Cleburne McFarland	Lauderdale.
Edwin McKay	Barbour.
Paul Pratt McKeown	Florida.
John Robert McNab	Barbour.
George Young McRee	Georgia.
Ernest Knoles Miller	Georgia.
Andrew Hammil Milstead	Elmore.

Edward Beall Mitchell	Georgia.
Lauriston Greene Moore	Lee.
Peyton Herndon Moore	Blount.
William Washington Moore	Blount.
Charles Carter Newman	Lee.
Stanley Cummings Nixon	Jefferson.
Thomas Winfrey Oliver	Montgomery.
Thomas Verner Ordway	Tennessee.
Joseph Preistly Orme	Chambers.
James Solomon Palmer	Blount.
Charles Moss Powell	Bullock.
James Harris Pride	Madison.
Oscar Browder Pruett	Barbour.
George Noble Ross	Lee.
Thomas Henry Schuessler	Chambers.
Benjamin Harris Sargent	Franklin.
Walter Russell Shafer	Perry.
James Edward Stanley	Chambers.
Robert Otis Stone	Mobile.
Jack Thorington	Montgomery.
Henry Curry Turner	Madison.
Frank Atkinson Vernon	Chambers.
Eugene Whaley	Jefferson.
Andrew Hearne Whitman	Lee.
Virginius Wilcox	Mobile.
William Dunbar Wills	Lee.
James Albert Wilson	Barbour.
Arthur Zachariah Wright	Lee.
Cary Oscar Wright	Lee.

Sub-Freshman Class.

Daniel Spigner Anderson	Lee.
William Frederick Bellinger	Jefferson.
Knox Booth	Autauga.
David French Boyd	Lee.
Frank Asbury Boykin	Lee.
James Hardy Bradford	Lee.

Willie Orlando Brooks	Lauderdale.
Porcius Festus Caddell	Bibb.
James Burch Charles	Montgomery.
Philip George Clay	Hale.
Charles Edward Coleman	Georgia.
Henry Wyatt Dozier	Jefferson.
Leooard Leonidas Godbold	Wilcox.
William Wesley Goldsmith	Lowndes.
William Woolson Goolsby	Elmore.
James A. Griffin	Lee.
Benjamin Browning Haralson	Dallas.
John Fletcher Heard	Lee.
John Alexander Jackson	Lee.
Charles Albert Johnstone	Mobile.
Cary Park McElhaney, Jr.	Lee.
Malcolm Demos Moore	Hale.
Eddie Lette Mosely	Monroe.
Howard Bond Mosely	Monroe.
Hunter Glenn Motley	Macon.
Malcolm Oates	Mobile.
George Emmett Pace	Macon.
Charles Llewellyn Pinkston	Montgomery.
John Williams Hudson Powers	Lee.
Thomas Percy Rockett	Jefferson.
Edwin Norville Sawkins	Mississippi.
Charles Watkins Scruggs	Madison.
Andrew Jackson Smith	Lee.
Marshall Burt Smith	Lee.
James Nelson Stephens	Barbour.
Felix Stanley Thomas	Lee.
Joseph Verner Vaughan	Dallas.
Henry Watts Vinson	Georgia.
Jesse Myers West	Dallas.
Robert Patton Weedon	Lauderdale.
Ross Green Whisenant	Calhoun.
Frank Lewis Whitman	Lee.
John Walker Wilcox	Mobile.

Marvin Clark Price Williams	Mobile.
John Adams Wills	Lee.
James Alexander Wilson	Franklin.

SPECIAL STUDENTS.

Albert Crosland Bowen	Dale.
Paul Andrew Goldsmith	Lowndes.
Arthur Harris Hall	Georgia.
James Thomas Heflin	Randolph.
Joseph Andrew Holifield	Lee.
Dudley David Stephens	Barbour.

SUMMARY.

Graduates	7
Senior Class	21
Junior Class	50
Sophomore Class	61
Freshman Class	93
Sub-Freshman	46
Special students	6
Total	284

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	270	Biology	45
History	147	Agriculture	126
French	18	Physics	122
German	18	Botany	61
Latin	67	Geology	49
Mental Science	10	Engineering	40
Political Economy	22	Drawing	224
Mathematics	244	Mechanic Arts	150
Chemistry	95	Military Tactics	268

MILITARY ORGANIZATION.

1890–'91.

President.

W. L. BROUN.

Commandant.

J. B. McDONALD, 1st Lt. 10th U. S. Cavalry.

Surgeon.

J. H. DRAKE, M. D.

Cadet Captains.

1. L. E. Baker,
2. J. N. Dean,
3. F. A. Lupton,
4. B. F. Harwood.

Cadet 1st Lieutenants.

1. R. C. Smith, Adj't.
2. W. A. Marshall, Qr. Mr.,
3. C. L. Hare,
4. F. J. Bivins,
5. C. B. Glenn,
6. C. C. Johnson.
7. J. C. Kimball,
8. W. E. Fitzgerald,
9. J. A. Cox,
10. S. J. Buckalew.

Cadet 2d Lieutenants.

1. H. Benton.
2. P. Reynolds.

Cadet First Sergeants.

1. C. A Brown,
2. L. S. Munford,
3. J. E. Gachet,
4. H. F. Dobbin.

Cadet Sergeants.

1. W. F. Feagin, Sgt. Major,
2. J. T. Bullen,
3. D. L. Whetstone, Qr. Mr. Sgt.,
4. E. C. Averyt, Col. Sgt.
5. G. A. Thomas,
6. A. L. Jones,
7. W. B. Clay,
8. H. L. Davidson,
9. J. G. Crommelin,
10. A. S. Averett,
11. R. W. Greene,
12. R. F. Hare,
13. R. J. Trammell,
14. E. H. Graves,
15. H. T. DeBardeleben,
16. D. E. Wilson,
17. W. S. Allen,
18. S. L. Toomer,
19. F. M. Moseley.

Cadet Corporals.

1. J. Dumas,
2. R. C. Spratling,
3. C. H. Smith,
4. W. R. Bishop,
5. W. S. Crump,
6. E. B. Mell,
7. C. H. Weston,
8. J. H. Smith,
9. L. A. Siebold,
10. C. F. Clopton,
11. L. S. Smith,
12. H. R. Johnstone,
13. T. G. Foster,
14. J. H. Dunstan,
15. W. Van Antwerp,
16. *J. S. Pou,
17. *C. D. Kline,
18. *R. L. G. Bivins,
19. E. A. Smith.

Note.—Numbers indicate the relative rank of officers in each grade. * Denotes Color Corporal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be of good moral character. To enter the fourth class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.
2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar and division into paragraphs.
3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers, the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots. (b) Algebra, to quadratic equations.

Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

For admission to the higher classes, students should be prepared to stand a satisfactory examination on all the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 16th of September, the day on which the session opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the Freshman class are admitted to the sub-college department.

They will be advanced to full admission to the Freshman class when they are qualified to pass satisfactorily the required examinations.

Students upon their arrival at Auburn will report immediately to the President. No student will be admited to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week and in all give twenty-seven exercises per week required.

SPECIAL STUDENTS.

Students who are qualified to prosecute the studies of the junior class, and those over twenty-one years of age who are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study they may prefer and for which they may be qualified ; all other students will be assigned to one of the regular prescribed courses of study, unless otherwise ordered by the Faculty.

Regular students who fail to pass satisfactory final examinations in any one study become special students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greater number of studies, and their names are so placed in the Catalogue.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical and Natural Sciences, with their applications; Agriculture, Biology, Mechanics, Astronomy, Mathematics, Engineering, Drawing, English, French, German and Latin Languages, History, Political Economy, Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are three degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion:

I. COURSE IN CHEMISTRY AND AGRICULTURE.
II. COURSE IN MECHANICS AND ENGINEERING.
III. GENERAL COURSE.

There are also two partial courses, each requiring two years for its completion:

IV. TWO YEARS' COURSE IN AGRICULTURE.
V. TWO YEARS' COURSE IN MECHANIC ARTS.

Course I includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II includes the principles and applications of the sciences that directly relate to civil and mechanical engineering, and is adapted to those who expect to enter the profession of engineering.

Courses III has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching, or in some commercial or manufacturing business.

Courses IV and V have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and take one of the regular degree courses.

Students who complete either of these two year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

Those who have completed the general course in each department of the school of Mechanic Arts, and are qualified, can enter upon a more extended technical course in Mechanical Engineering.

PREPARATORY COURSE IN PHARMACY.

Students who expect to become practical pharmacists can enter upon a special course of Chemistry and Natural History and occupy all their time in the laboratories of these departments, under the immediate direction of the professors. With the excellent facilities offered in the chemical and botanical laboratories, scientific preparation of great value to the practical pharmacist can be obtained.

COURSE IN MINING ENGINEERING.

Students who have received the degree of B. Sc. in Engineering, or who have prosecuted an equivalent course of study, can enter upon a special course of Mining Engineering, which includes the following subjects of study, and will require a residence of one year:

Industrial Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, Mining Machinery, Drifting, Tunnelling, Timbering, Ore Dressing, and the various operations connected with the exploitation of mines.

This course of study will be under the charge of the Professors of Chemistry, Engineering and Natural History.

SPECIAL ONE YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study Agriculture will be permitted, without examination, to enter any class under the Professor of Agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They can attend the lectures in Agriculture in all the classes, and engage in the practical work at the experimental station, in the field, stock-yard, dairy, garden, orchard and vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of Scientific Agriculture.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this College, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I.—Chemistry.
II.—Engineering, Field Work, Surveying, etc.
III.—Agriculture.
IV.—Botany.
V.—Mineralogy.
VI.—Biology.
VII.—Technical Drawing.
VIII.—Mechanic Arts.
*IX.—Physics.

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* It is expected to equip this laboratory next session.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elementary Physiology	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Labor'y.	6. Mechanic Art Lab'y.	6 Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture.	3. Agriculture.	3. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture.	2. Agriculture.
4. Botany. (Lab'y.)	4. Botany. (Lab'y.)	4. Botany. (Lab'y.)
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Begins March 1st.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Moral Science.	2. Moral Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
2. Biology.	2. Biology.	2. Biology.
2. Agricultural Chemistry	2. Agricultural Chemistry	2. Agricultur'l Chemistry
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

II.—COURSE IN MECHANICS AND ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. El. Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture (b).	3. Agriculture (b).	3. Agriculture (b).
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Or History continued. Botany begins March 1st.

(b) For Agriculture may be substituted French or German or work in the Chemical Laboratory.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
4. Lab'y, Mineralogy (a).	4. Lab'y, Mineralogy (a).	6. Field Wrk, Engin'g (a)
4. Field Work, Engin'g.	4. Field Work, Engin'g.	3. Military Drill.
3. Military Drill.	3. Military Drill.	

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature (b).	2. Political Economy (b).	2. Political Economy (b).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	3. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
Field Work, Engineer'g	Field Work, Engineer'g	Field Work, Engin'g.

III.—GENERAL COURSE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	2. History.
5. Latin.	5. Latin.	4. Latin.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

(a) Or Mechanic Arts.

(b) For Eng. Lit. and Pol. Econ. may be substituted French or German.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	4. Latin.
2. History.	2. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Genaral Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. Latin.	3. Latin.	3. Latin.
3. German.	3. German.	3. German.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Laboratory Work (b).	6. Laboratory Work (b).	6. Laboratory Work (b).
3. Military Drill.	3. Military Drill.	3 Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Moral Science.	2. Moral Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science	1. Military Science.
English Thesis.	English Thesis.	English Thesis.

(a) Or History continued. Botany begins March 1st.

(b) The student may elect the Laboratory of any department for which he may be qualified.

IV.—TWO YEARS' COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5 English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elem'tary Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
12. Mechanic Art Lab'y	12. Mechanic Art Lab'y	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

V.—TWO YEARS' COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elem'tary Physiology.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
5. Agriculture.	5. Agriculture.	5. Agriculture.
12. Practical Agriculture.	12. Practical Agriculture.	12. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SCHEDULE OF EXERCISES.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I. 8–9	4. Algebra. 3. Latin. 2. French 1 & 2. Drawing. 4. Mechanic. Arts.	4. Geometry. 3. Latin. 2. German. 1 & 2. Drawing. 2. Botany.	4. Algebra. 3. Latin. 2. French. 1 & 2. Drawing. 2. Practical Agr. 4. Mech. Arts.	4. Geometry. 3. Latin. 2. German. 1&2. Drawing. 2. Botany.	4. Algebra. 3. Latin. 2. French. 1 & 2 Drawing. 2. Practical Agri. 4. Mechanic Arts. 1. Biology.	Exerc's in Elocution
II. 9–10	4. English. 3. Chemistry. 2. Engineering. 1. Calculus. 1. French. 4. Mech. Arts.	4. History. 3. Agriculture. 2. Engineering. 2. Botany. 1. Physics.	4. English. 3. Chemistry. 2. Engineering. 1. Calculus. 1. French. 4. Mech. Arts. 2. Practical Agri.	4. History. 3. Agriculture. 2. Engineering. 2. Botany. 1. Physics.	4. English. 3. Chemistry. 2. Engineering. 1. Biology. 1. Calculus. 1. French. 2. Latin. 4. Mech. Arts. 2. Practical Agr.	Military Drill.
	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
III. 10–11	3. English. 2. Physics. 1. German. 1. Engineering. 1. Biology.	3. History (1. 2). 3. Botany (2. 3). 2. Agriculture. 2. Latin. 1. Engineering. 4. English.	3. English. 2. Physics. 1. German. 1. Engineering. 1. Biology.	3. History (1. 2). 3. Botany (2. 3). 2. Agriculture. 2. Latin. 1. Engineering. 4. English.	3. English. 2. Physics. 1. German. 1. Engineering.	2. German. 4. Mech. Arts. 1 Sec. 3. Mech. Arts, 2 Sec. 1. 2. Machine Work. Laboratory Work. Field Work, Eng'ng.

IV. 11–12	4. Physics (1). 4. Physiology (2). 4. Agriculture (3). 4. Latin. 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1). 1. Polit.Econ.(2.3)	4. Mech. Arts 1 Sec 4. Latin. 3. Drawing. 2. Mathematics. 1. Chemistry. 1. Latin.	4. Physics (1). 4. Physiology (2). 4. Latin. 3. Agriculture. 2. Mathematics. 2. Chemistry. 1. English (1). 1. Political Economy (2. 3).	4. Mechanic Arts 1 Sec. 4. Latin. 3. Agriculture, 2. Mathematics. 1. Chemistry. 1. Latin.	4. Physics (1). 4. Physiology (2). 4. Agriculture (3). 4. Latin. 3. Drawing. 2. Mathematics. 2. Chemistry. 1. Military Science	4. Mech. Arts, 1 Sec. 3. Mech. Arts 2 Sec. 1 & 2. Machine Work. Field Work, Eng'ng. Laboratory Work.
V. 12–1	4. Drawing. 3. Mathematics. 2. English.	4. Mech. Arts 1 Sec 3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Mental Science.	4. Mechanic Arts [1 Sec. 3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Mental Science.	Mechanic Arts. Laboratory Work.
P. M.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
VI VII 2–4	4. Mech. Arts 2 Sec 3. Mech. Arts 1 Sec 3. Field Work Agr. 1 & 2. Laboratory. 1 & 2. Field Work Eng'ng.	3. Mech. Arts 2d & 3d Sec. 2. Mineralogy Laboratory. 2. Mech. Arts. Military Drill (*)	4. Mech. Arts 2 Sec 3. Mech. Arts 1 Sec 3. Field Work Agr. 1 & 2 Laboratory Chem. Exer's in Elocut'n 1 & 2 Field Work Eng'ng.	3. Mech. Arts 2d & 3d Sec. 2. Mineralogy Laboratory. 1. 2 Mech. Arts. Military Drill, (*)	4. Mech. Arts 2 Sec. 3. Mech. Arts 1 Sec 3. Field Work Agr. 1&2. Labor'y Chem 1 & 2. Field Work Eng'ng. Exer's in Elocuti'n	

Chapel services daily at 7:50 A. M.
Numbers prefixed denote classes,—1 denotes Senior, 2 Junior, &c. Numbers affixed—(1), (2), (3), denote terms.
*From 4:30 to 5:30 P. M.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with Elementary Rational Mechanics, treated graphically.

This is followed by a full discussion of Molecular Mechanics; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the junior class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the senior class include Electricity and its application; Optics, Astronomy and Meteorology.

TEXT-BOOKS.—In Physics, Atkinson's Ganot. In Astronomy, Young.

MATHEMATICS.

PROF. SMITH.

The general course for the first two years embraces the first year, Algebra and Geometry, six books; second year, Solid Geometry, Plane and Spherical Trigonometry, Surveying, Mensuration.

Two objects are sought to be attained: First, mental discipline; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given in the sophomore class in farm, town and government land surveying, dividing land, mapping, plotting and computing of areas, etc.; also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied Mathematics of the Mechanical Engineering course. Analytical Geometry, Descriptive Geometry and Calculus are pursued in the Engineering course. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of principles and formulæ.

TEXT BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry and Surveying, Wentworth's Analytical Geometry, Waldo's Descriptive Geometry, Taylor's Calculus.

NATURAL HISTORY AND GEOLOGY.

PROF. MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. The origin of ore deposits, mineral springs and geological relations of soils are carefully studied.

There is also a course of advanced work in practical Geology for the post-graduate students. This subject is pursued by applicants for degrees of Master of Science and Mining Engineering.

The junior class in Engineering spends two terms in Mineralogy and blow-pipe work, *Botany.*—The students of the Sophomore class begin the study of Botany the first of March and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section.

In the Junior class, in the course of Chemistry and Agriculture, an amount of time is devoted to systematic and structural Botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all the necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students. A dark room is attached to this laboratory for photo-micrography.

TEXT-BOOKS.

Le Conte's Geology, Gray's Botany, Dana's Mineralogy, Goodale's Physiological Botany, Nelson's Herbarium and Plant Descriptions.

ALABAMA WEATHER SERVICE.

The United States Signal Service has established in Alabama a State system for collecting meteorological data relating to climatic changes. The service is now in successful operation with the central office located at this Institute. Bulletins are issued at the close of each month, compiled from reports sent from numerous stations throughout the State. An opportunity is thus offered the students in Meteorology of becoming familiar with the system operated by the Department at Washington.

CIVIL ENGINEERING AND DRAWING.

PROF. LANE.

CIVIL ENGINEERING.

The special studies of this department begin in the Junior class, and require a good knowledge of Algebra, Geometry, Trigonometry and Analytical Mechanics. They are as follows:

Junior class.—Simple, compound, reversed and parabolic curves, turnouts and crossings, leveling, gradients, setting slope stakes, location and construction of common roads and railroads.

Senior class.—Classification, appearances, defects, seasoning, durability and preservation of timber; classification and description of natural building stones; bricks and concretes; cast and wrought iron, steel and other metals; limes, cements, mortars and their manufacture; paints and other preservatives; classification of strains and a general mathematical discussion of the same; joints and fastenings; solid and open built beams; classification, construction and mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds; their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction; location and construction of railroads; navigable, irrigation, and drainage canals; river and sea-coast improvements. Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class.—Henck's Field Book for Railway Engineers, Gillespie's Roads and Railroads, Parson's Track.

Senior Class.—Wheeler's Civil Engineering, Von Ott's Graphic Statics.

DRAWING.

All of the students of the Freshman and Sophomore classes are required to take Drawing; but only the students in Mechanics and Engineering in the Junior and Senior classes.

The Freshman class is taught linear and free-hand drawing. The Sophomore class is instructed in the principles of orthographic and isometric projections, shade and shadows, perspective and tinting. In the Junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and shadows and tinting; also sketches of tools and machines, plans, elevations and cross-sections of buildings and blue prints. The Senior class makes topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American Plates belonging to the College, Keuffel & Esser's Alphabet.

AGRICULTURE.

PROF. NEWMAN.

The course of instruction in this department embraces: I., soils; II., plants; III., domestic animals. In the Freshman class twenty lectures, covering the third term of the session, treat of soils, their classification, physical defects and remedies, causes of diminished fertility, and the means used to protect them from waste and restore fertility, the theory and practice of surface and sub-drainage, etc. The subject is treated with special reference to the different classes of soil in Alabama, omitting as far as possible questions involving a knowledge of Chemistry and Botany.

In the Sophomore class, in addition to the discussion of the physical properties and mechanical treatment of soils, the methods of studying their chemical defects and their remedies are discussed. The sources of the important elements of plant food, and their use upon different soils and plants, the restoration of humus, saving home manures, composts, commercial fertilizers, the office of different chemical elements in plant development—the relations of plant growth to soil and atmosphere, the theory and practice of restoration of crops, terracing and grading to prevent washing, plows and plowing—indeed everything connected with tilling the soil passes under review as foundation work.

Southern agriculture is then treated in the concrete—the history, nature and cultivation of each of our field crops discussed as regards their adaptation to and treatment upon the soils of Alabama. This occupies the first and second terms. The third term is devoted to domestic and commercial horticulture, poultry, sheep, cattle-breeding and management of the dairy, etc. In the junior class stock-breeding and management is completed in the first term, and a thorough course in pomology, including the propagation of nursery stock, planting, manuring, pruning, cultivating, harvesting and marketing every species of fruit, treated theoretically and practically, occupies the second term. Barry's Fruit Garden, corrected for our latitude, is used in this class. In the third term lectures are delivered upon political economy in its special relations to the pursuit of agriculture; the selection, purchase, equipment and management of a farm, the ratio between fixed and working capital, the employment and management of labor, etc. Landscape gardening, treated with special reference to the improvement of country homes, occupies the remainder of the session.

CHEMISTRY.

PROF. LUPTON. ASSISTANT, L. W. WILKINSON.

Instruction in this department embraces—

1. A course of lectures in General Chemistry.
2. A course of lectures in Industrial Chemistry.
3. A course of lectures in Agricultural Chemistry.
4. Systematic laboratory work in connection with each

course of lectures, for the practice of chemical analysis and chemical research.

1. Course in General Chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of Chemical Philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of Organic Chemistry. In this course the more common applications of Chemistry to the Arts and Manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and most approved instruments necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cook's Chemical Philosophy, Chemical Journals.

2. The lectures on Industrial Chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of Chemistry in the Arts and Manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, heating, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufacturing products together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy.

3. Course in Agricultural Chemistry: This consists of lectures on Chemistry in its applications to Agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained,

the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock and the various operations carried on by the intelligent and successful agriculturist.

BOOKS OF REFERENCE.

Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation with Chemistry, Scientific Journals, Reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign Agricultural Departments and Stations.

4. The course of systematic Laboratory Work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operation of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the Chemical Laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis. At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from the deposit.

BOOKS USED.

In Qualitative Analysis—Jones, Fresenius, Plattner.

In Quantitative Analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In Agricultural Chemical Analysis—Church, Frankland. Official methods of the Association of Agricultural Chemists.

CHEMICAL LABORATORY.

(For description of the building see page 15.)

The Chemical Apparatus recently purchased for the new laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first class laboratories, a new and improved Schmidt and Hensch's Polariscope has been imported, two short-arm Becker Balances of latest pattern, Bunsen Spectroscope, Zeiss' Microscope, and other instruments for delicate and accurate work.

ENGLISH AND LATIN.

PROF. THACH.

ENGLISH.

In this department the students are carried through a systematic course of study in the English Language and literature. In the courses of study which do not include the ancient classics, a full course in English is especially important. It is therefore designed, as much as the time allotted permits, to familiarize the students by frequent exercises with the standard authors of the language.

The course of study is as follows:

Freshman Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied.

Whitney's Essentials, Lockwood's Lessons in Rhetoric.

Sophomore Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on literary and historic themes.

Genung's Rhetoric, Scudder's American Poems, Abbott's How to Write Clearly. Weekly exercises in declamation are required of this class.

Junior Class.—Three hours a week; critical study of English Classics, History of English and American Literature, Logic, Essays.

Shaw's History of English Literature, Abbott's English Lessons, Hale's Longer English Poems.

Senior Class.—Two hours a week, first term. Principles of criticism and study of English Classics; second and third terms, Political Economy. Two hours a week, first and second terms, Mental Science; third term, Moral Science.

Shakespeare's Plays, Chaucer's Canterbury Tales, Wayland's Science of Wealth, Hickok's Mental Science, Gregory's Christian Ethics.

Three original orations are required during the year of each student of the first and second classes.

LATIN.

The subjects taught in this department are the Latin Language and Literature.

The modes of instruction are by translation from the Latin texts into English and from English into Latin. The constant use of blackboards adds much to the progress and accuracy of the student.

A systematic course of exercises, illustrative of the principles of Latin etymology and syntax, is carried on in connection with the reading of the authors prescribed. Special attention is given to English derivatives from the Latin, and to the corresponding idioms of the two languages.

The progress of the student is valued not so much by the number of books read, as by his ability to read Latin and explain the principles of interpretation and construction.

Latin authors read:

Freshman Class.—Virgil, Cicero's Orations, Grammar and Composition.

Sophomore Class.—Cicero's Composition.

Junior Class.—Tacitus, Horace, Selections from Latin poets and Prose writers, Classical Literature.

Senior Class.—Cicero's Tusculan Disputations, Terrence, History of Latin Literature.

MECHANIC ARTS.

G. H. BRYANT, B. S. DIRECTOR.

J. J. WILMORE, B. A. BLAKEY, ASSISTANTS.

The course in Manual Training covers three years, as follows: First year, wood-working—carpentry and turning;

second year, pattern-making and foundry and forge work—moulding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse power Harris-Corliss automatic engine, which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 20 double wood-working benches, each with complete set of carpenter's tools; 20 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 buzz planer; 2 scroll saws (power), 1 large pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. In addition to these, the tool room is supplied with a variety of extra hand-tools for special work.

The equipment for the foundry consists of moulding-benches for 12 students, each supplied with a complete set of moulder's tools; a 14-inch cupola, with all modern improvements, capable of melting 1,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small moulding flasks, special tools, etc.

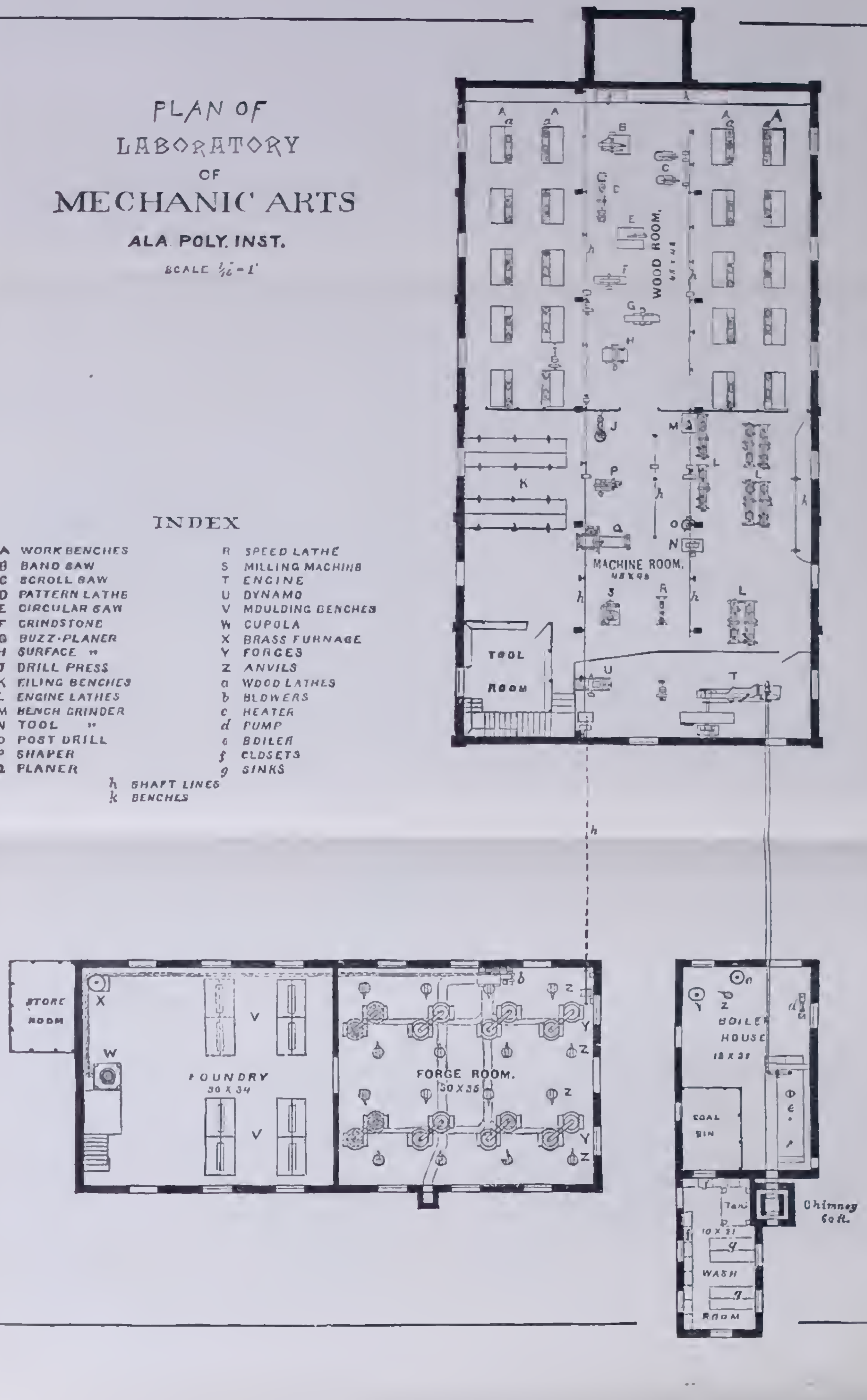
The forge shop equipment consists of 16 hand forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine tools in the machine department are as follows: 6 engine-lathes (screw-cutting), 14-inch swing, 6-foot bed; 2 engine-lathes, 16-inch swing (one with taper attachment); 1 speed lathe, 10-inch swing; 1 20-inch drill-press (power-feed); 1 15-inch shaper; 1 22-inch x 22-inch x 5 foot friction planer; 1 universal milling machine; 1 corundum tool-grinder (14-inch wheel); 1 bench grinding-machine (small); 1 post drill press (14-inch). A part of this room is set apart for vise-work, chipping and filing; and benches for 12 students are provided, each with vise and sets of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for gen-

PLAN OF
LABORATORY
OF
MECHANIC ARTS

ALA. POLY. INST.

SCALE 1/16" = 1'



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eral shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, etc.

The nature of the work in each department is as follows:

First Year.

I. A course of carpentry (hand work covering the first term and part of the second, or about five months).

The lessons include instruction on the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber-splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the three months of the third term. The lessons comprise, first, nature and use of lathe and tools, plain straight turning caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck-work, hollow and spherical turning.

Second Year.

I. A course in pattern-making, covering the first half of the first term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general moulding.

II. A course in moulding and casting in iron and brass occupying ten weeks. The work consists for the most part of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola, each student in turn taking charge of a melting.

III. A course in forge work in iron and steel, occupying the remainder of the year. The lessons are arranged so that the students, in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc,

THIRD YEAR.

I. A course in chipping and filing covering the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc.; filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sliding and tight fits, sawing, pin, screw and key filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass: turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals: Such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

Instruction is generally given, first, by black-board drawings or sketches which the student copies, with dimensions in note-book, with which each one provides himself; thus each one works from his own notes. This is supplemented, whenever necessary, by the actual construction of the lesson by the instructor before the class, second by inspection and direction at the bench by the instructor.

Students desiring to pursue the study of applied mechanics beyond the above course will take a special course of Steam and Mill Engineering, supplemented by experiment and practice with the apparatus, including steam generation and the forms, construction and use of steam-boilers and accompanying apparatus; steam as a motive power, and forms, construction and use of the steam engine, with the study and use of the indicator; transmission of power—shafting, belting, gearing, etc.; also elementary theoretical mechanism.

BIOLOGY.

PROFESSOR ATKINSON.

Elementary Biology.—Three lectures a week during the second term will be given to the freshman class upon the elementary principles of biology. The course will include a discussion of the fundamental physiological properties of animal and plant life. The lectures will be supplemented by experiments, demonstrations and microscopic illustrations before the class.

Practical Biology.—This subject is presented by lectures twice a week to the senior students in Agriculture and Chemistry. The first part of the year will be devoted to the study of fungi, giving prominence to those which cause diseases of cultivated plants. This will be followed with the study of insects, including those injurious and beneficial to Agriculture. Special attention will be given to methods employed in combating the attacks of fungi and insects upon plants.

The reference books will be announced to the classes. The department contains a carefully selected library of the standard works on biology and many rare and valuable works, besides current periodicals adapted to aid in the special investigations carried on in the laboratory.

MODERN LANGUAGES AND HISTORY.

C. H. BARNWELL, JR., ADJUNCT PROFESSOR.

MODERN LANGUAGES.

The following regular courses are given in French and German:

French.—First Year: Three recitations a week. During this year the principal object is to acquire a thorough knowledge of the elements of grammar, and a correct pronunciation, together with facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year, the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and careful instruction is given upon the laws of grammar and the construction of the language.

German.—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

Special Courses.—In addition to these regular courses, additional classes are formed for special study in the literature, or for special study in any particular direction desired, when the number of students desiring it is sufficient.

TEXT-BOOKS.

French—First Year: Joynes-Otto's French Grammar and Introductory Reader.

Second Year: Super's French Reader, Jeanne d'Arc, and d'Avare. Heath's French Dictionary recommended.

German—First Year: Joynes-Meissner's German Grammar, and Joyne's Reader,

Second Year: Hauff's Karavane, Peter Schlemihl, Die Journalisten, Heath's German Dictionary recommended.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that History is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. This causal relation of events is closely studied and the students are taught to investigate for themselves the growth of ideas, and to trace particularly their development in the United States, so as to acquire a practical knowledge of the history and present workings of our government and institutions. The knowledge acquired is rendered clear and permanent by frequent comparison of customs and laws, and also by diagrams, charts and maps. Instruction is given by lectures and text-books.

The course covers two years, and embraces the History of the United States, studies on our government and its institutions, and on general history.

TEXT-BOOKS.

First Year: Johnston's U. S. History, and Swinton's "Outlines of the World's History."

Second Year: Myer's Mediæval and Modern History.

MILITARY SCIENCE AND TACTICS.

LIEUT. J. B. McDONALD, U. S. ARMY, Commandant.

Military Science and Tactics are required to be taught in this institution by law. This law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the School of the Soldier, of the Company and of the Battalion; also in Guard Mountings, Inspections, Dress Parades, Reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern Cadet rifles and accoutrements and two pieces of field artillery. Ammunition for practice firing is used under the direction of an experienced officer.

The following uniform of standard Cadet gray cloth has been prescribed for dress, viz.: Coats and pants as worn at West Point, with sack coat for fatigue, dark blue Cadet cap. A neat and serviceable uniform can be obtained here at $18 to $19. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for proficiency in drill, deportment and studies. Each company is officered by one Captain, two 1st Lieutenants, one 2d Lieutenant, and with a proper number of Corporals. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The Junior Class recites once a week in the United States Infantry Tactics.

The Senior Class recites once a week in "Notes on Military Science."

POST-GRADUATE DEGREES.

There are three Post-Graduate Degrees—MASTER OF SCIENCE, MINING ENGINEER and CIVIL ENGINEER.

A Post-Graduate Degree may be obtained by a graduate of this College, or of any other institution of equal grade, by one year's residence at the College, spent in the successful prosecution of a course of study in applied science prescribed by the Faculty.

Candidates must also present to the Faculty a satisfactory thesis, showing independent investigation upon some subject pertaining to their course of study, and must pass a satisfactory examination on the course of study prescribed. The examination is written, and also oral, in presence of the Faculty.

Applicants for Post-Graduate Degrees are, by order of the Board, permitted to matriculate without payment of fees.

They are subject to the general regulations as other students, but are exempt from all military duty.

Resident graduates, who are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College, except chemical laboratory, without payment of regular fees.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above 90 per cent.

Certificates of Distinction are awarded in public on Commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class, and also to those who obtain three distinctions in the freshman class, four in the sophomore or junior class, and five in the senior class, provided they have satisfactorily passed all the regular examinations of that session.

PHOTOGRAPHY.

During the second term there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be opened to any student who may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

From the record a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written recitations, or monthly examinations on the studies of the month, are held at the option of the professor.

At the end of each term written or oral examinations, or both, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examination, can be promoted to full standing to the next higher class, only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within six weeks of the examination, except in extreme cases.

Examinations for degrees, or certificates of proficiency, embrace the entire subject of study in the course.

LIBRARY.

A commodious room in the new building has been appropriated to the library. It is designed to make it an important educational feature of the college. At present it contains a number of valuable reference books, books of the standard authors, and others suitable for students. It is open daily, when students are permitted to select books under prescribed regulations.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study, and punctuality in attendance on recitations and all other duties, are required of every student.

Students are not allowed to have in their possession weapons or arms not issued for the performance of military duty.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the Cadet are manifest.

Privates of the first class may be excused by the President from all military drills, and also students over twenty-one years of age, who are permitted to matriculate and devote their time to one special study, as chemistry, agriculture, etc.

RELIGIOUS SERVICE.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized, and through its weekly meetings exerts a wholesome Christian influence among the students of the College.

LOCATION.

The College is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-one feet above tide water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty a thesis on a subject of immediate relation to some study of his course, and deliver the same at Commencement, if required by the Faculty.

This thesis must be given to the Professor of English by the first of May.

LITERARY SOCIETIES.

There are two Literary Societies connected with the College—the Wirt and Websterian. Each has a hall in the college building.

These societies hold celebrations on the evenings of Thanksgiving Day and the 22d of February, and also Commencement week. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in presence of the Faculty and students.

The *first and second terms* the students of the sophomore class are exercised in declamation.

The *second term* the members of the junior class deliver original orations.

The *third term* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The Annual Alumni Oration, by a member of the society, is delivered in the chapel during Commencement week. The following are the officers of the society:

T. H. Frazer, M. D. President.
J. C. Street, Vice-President.
C. C. Thach, Treasurer and Secretary.

BOARDING.

The College has no barracks nor dormitories, and the students board with the families of the town of Auburn, and thus enjoy all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after the "call to quarters," or are guilty of any violation of order.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

EXPENSES.

Incidental fee, per half session	$2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
Board per month, with fuel and lights	$12 to 15 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Board no fees can be remitted.

There is no charge for tuition.

For students entering after January 1st, the fees for half session only are required.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, will be refunded to the student.

AMOUNT OF DEPOSIT.

Each student on entering College should deposit with the Treasurer not less than $50.00, to pay the expenses of fees, one month's board, uniform, books, etc.

UNIFORM.

A uniform of Cadet gray cloth is prescribed which all under-graduate students are required to wear during the session. The uniforms are made at Auburn, of cloth manufactured at the Charlottsville mills. The suit including cap, costs about $19.00; the dress coat $10.00 to $11.00. It is neat and serviceable and less expensive than ordinary clothing.

SURGEON.

The Surgeon is required to be present at the College daily, to visit the Cadets at their quarters who are reported sick, and to give all requisite medical attention without other charge than the regular Surgeon's fee, paid on entering College.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of College fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when approved by the President. This approval is given only for necessary expenses, as stated in the Catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it only brings trouble and encourages idleness.

ACADEMIC YEAR.

The Academic Year commences on Wednesday, 16th September (second Wednesday after first Monday), and ends on Wednesday, 16th June (the second Wednesday after the first Monday), which is Commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 23d of December; the second term begins December 31st and ends March 27th; the third term continues from March 27th to the close of the session.

RESOLUTION OF THE TRUSTEES.

The following resolution was adopted by the Trustees:

That in view of increased facilities for instruction in Agriculture and the technical departments of education now possessed by this College, especially in the department of Mechanic Arts, made possible by the recent donation from the State, the Faculty are authorized, in addition to the legal name of this College, to print on the Catalogue the words ALABAMA POLYTECHNIC INSTITUTE, as significant of the expanded system of practical instruction in industrial science in the course of education now provided for.

DONATIONS TO LIBRARY.

Secretary of the Interior—Senate and House Reports, Mineral Resources, Consular Reports, Geological Survey, Ordinance Report, Bureau of Ethnology, Geodetic Survey, etc., 60 vols.

Hon. John T. Morgan, Public Documents, 5 vols.

Hon. James L. Pugh, Public Documents, 7 vols.

Hon. W. C. Oates, War of Rebellion, Congressional Record, 10 vols.

Hon. Robert Porter, Superintendent of Census, Bulletins, etc.

Hon. W. T. Harris, Commissioner of Education, Pamphlets, etc., 5 vols.

U. S. Geodetic Survey, 11 vols.

CALENDAR 1891-92.

Session begins	Wednesday, Sept. 16, 1891.
Examination for admission	Wednesday, Sept. 16, 1891.
First term begins	Wednesday, Sept 16, 1891.
First term ends	Wednesday, Dec. 23, 1891.
Second term begins	Thursday, Dec. 31, 1891.
Second term ends	Saturday, March 27, 1892.
Third term begins	Monday, March 29, 1892.
Sophomore class exercises	Saturday, May 1, 1892.
Final examinations begin	Monday, May 24, 1892.
Commencement sermon	Sunday, June 13, 1892.
Annual meeting of Trustees	Monday, June 14, 1892.
Military exercises	Monday, June 14, 1892.
Celebration of Literary Societies 8 P. M.	Monday, June 14, 1892.
Junior class celebration	Tuesday, June 15, 1892.
Alumni oration	Tuesday, June 15, 1892.
Address before Literary societies 8 P. M.	Tuesday, June 15, 1892.
Commencement day	Wednesday, June 16, 1892.

AGRICULTURAL

EXPERIMENT STATION

—OF THE—

AGRICULTURAL AND MECHANICAL COLLEGE

—OF—

ALABAMA.

OFFICERS

OF THE

AGRICULTURAL EXPERIMENT STATION.

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COMMITTEE OF TRUSTEES ON EXPERIMENT STATION:

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J. S. NEWMAN	Director and Agriculturist
N. T. LUPTON	Vice-Director and Chemist
P. H. MELL*	Botanist
G. F. ATKINSON	Biologist

ASSISTANTS.

ISAAC ROSS,	First Asst. Agriculturist in Charge of Live Stock and Dairy
JAS. CLAYTON	Second Assistant Agriculturist
J. T. ANDERSON, PH. D	First Assistant Chemist
L. W. WILKINSON, M. SC	Second Assistant Chemist
J. F. WILKINSON, B. SC	Third Assistant Chemist
R. E. NOBLE, B. SC	Fourth Assistant Chemist
A. M. LLOYD, B. SC	Assistant Botanist

* Prof. Mell has charge of the Meteorological Observations.

† Deceased.

AGRICULTURAL EXPERIMENT STATION.

DEPARTMENT OF AGRICULTURE.

In this department every variety of experiment with field crops, grasses, vegetables and fruits calculated to benefit the farmers of the State have been conducted, or are in progress. Worn and gullied lands have been brought into profitable cultivation, and swamps drained.

For the purpose of learning the chemical needs of the various typical soils of the State, chemicals, for experiment, have been furnished forty-three experimenters cultivating the different typical soils in every part of the State. These are furnished by the Station ready for application to the experiment plots, free of charge to the experimenters who volunteer to do the work according to printed instructions furnished by the Station. In addition to these an alumnus of the College is conducting upon his own lands an elaborate set of special nitrogen, potash and intercultural experiments with chemicals furnished by the Station. Varieties of seed have also been furnished a number for experimental comparison upon different soils. Varieties of grapes, strawberries and raspberries have also been gratuitously distributed to the experimenters for the purpose of learning what varieties may be profitably grown under the great variety of conditions of soil, climate and elevation presented in Alabama. Crops have been planted with special reference to facilitating research by the Chemist, Botanist and Biologist. The Station has a large house for milch cows, a model dairy with modern appliances, a gin-house with milling room, barn and stable, two silos, with 15-horse power engine. It also has the residence of the professor and general office, with storage rooms, etc.

DEPARTMENT OF CHEMISTRY.

The Chemical Department of the Agricultural Experiment Station, in connection with the Agricultural and Mechanical College of Alabama, includes in its present organization, the Chemist in charge and four assistants.

In addition to the work directly connected with the Station, the Chemist is Professor of general and Agricultural Chemistry in the Agricultural and Mechanical College, and official Chemist of the State Department of Agriculture. On the application of the Commissioner of Agriculture, he is required to "analyze and certify the analysis of all fertilizers, samples of which are furnished him." The variety and extent of this work, which has greatly increased during the past year, can be seen from the following tabular statement of the number and character of quantitative analyses made during the year ending April 1st, 1891. In the analyses of commercial fertilizers, only those constituents are determined which the State law requires, viz: Water soluble, citrate soluble and acid soluble phosphoric acid, nitrogen and potash.

Analyses made during the year from April 1st, 1890, to April 1st, 1891.

	No. of Samples.
Acid phosphates with nitrogen and potash	185
Acid phosphates with potash	11
Acid phosphates	75
Natural phosphates	26
Marls	2
Tankage	26
Cotton seed meal	17
Muriate of potash	13
Bone meal	5
Dried blood	3
Bat manure	2
Coal ashes	1
Kainite	1
Sodium nitrate	1
Cotton seed hull ashes	2
Compost	1
Iron ores	2
Limestone	2
Feed stuffs	6
Sorghum	63
Milk	37
Butter	37
Total	518

In addition to the quantitative work, a large number of mineralogical specimens, the character of which could be ascertained by mere inspection or by simple qualitative tests, have been examined and their value determined.

Two bulletins have been prepared and issued during the year, embracing in detail the results of analyses of commercial fertilizers and other substances, in addition to discussions of subjects of interest to the farmers of the State. The first of these bulletins on "nitrogen as a fertilizer," embraces a discussion of nitrogen as plant food, its sources in vegetation and its accumulation by plants, especially by pea vines, the value of which as a fertilizer is discussed in connection with original determinations of the amount of phosphoric acid, nitrogen and potash contained in the vines and roots. The results show the great value of this important natural fertilizer in restoring fertility to worn and exhausted soils.

The second bulletin contains a discussion of the composition of milk and butter with special reference to the effects of feeding on cotton seed and cotton seed meal. Twenty-seven analyses of these dairy products, derived from different feed stuffs, show an increase in the melting point and a corresponding diminution in the volatile acids of the butter produced by feeding on the substances mentioned.

FACILITIES FOR WORK.

The new building for the Department of Chemistry is complete in its arrangements, and admirably adapted to meet the growing demands of modern progress in this department of science. In this building, a description of which is given in this Catalogue, is located the State Chemical Laboratory, where all the chemical work of the Experiment Station is carried on. Care has been taken to secure the best form of work tables, niches, hoods, etc. Gas, water and other conveniences and necessaries for effective work are abundantly supplied.

The equipment is the best that can be secured from manufacturers in this country and in Europe. In addition to the apparatus usually found in chemical laboratories, and especially where soils, feed stuffs, and dairy products are analyzed and their properties investigated, may be mentioned—

Schmidt and Hansch's Polariscope.
Zeiss' Microscope.
Zeiss' Refractometer.
Spectroscope.
Becker's Balances.

Also, a new and special arrangement for carrying on, at the same time, a number of nitrogen determinations by the Kjeldahl method.

The Library of the Experiment Station contains a large number of standard works of reference, and is supplied with the principal American, English, French, and German chemical journals.

DEPARTMENT OF BOTANY AND METEOROLOGY.

The work in this department of the station is specially devoted to investigations in phanerogamous plants, and observations of meteorological instruments.

The laboratory for botanical work consists of the following apparatus:

One Zeiss microscope, No. II*a*, with apochromatic objectives, with the equivalent focus in *m m* of 16.0, 8.0, 4 0, and one homogeneous immersion of 2.0, the series of compensating oculars of 2, 4, 6, 8, 12, 18, and Zeiss projection eye piece for photographing objects; camera lucida after Abbe; sliding objection-changers; Abbe condenser; Goniometer eye piece; eye piece micrometer; stage micrometer; polarizers.

Four Leitz microscopes for students, containing objectives 3 and 7, oculars 1 and 3.

Twelve Acme Students microscopes with objectives 1, ½, 1-5 inches, and oculars to suit.

Two Bausch & Lombs compact dissecting and mounting microscopes.

One Bausch & Lombs Laboratory microtome.

One King's microtome.

One Bausch & Lomb Professional photo-micro camera, with bellows to extend eight feet, containing mechanical stage, achromatic amplifier, 1 inch objective.

Bull's eye condenser, lens 3 inches diameter.

A well equipped dark room with all the appliances for complete photographic operations.

One camera fitted with Clark's Rapid Rectilinear lens List No. 1, with Bausch & Lombs, Diaphragm Shutter.

The laboratory contains besides the above all the vessels and smaller instruments needed for investigations in botany.

The meteorological observatory is supplied with:

One maximum thermometer.

One minimum thermometer.

One wet and dry bulb hygrometer.

Three sets of soil thermometers, ranging in depth from one to ninety-six inches.

One solar radiator thermometer.

One terrestrial thermometer.

One Barometer.

One Anemometer, with electrical recorder.

One Anemoscope.

One rain gauge.

The United State Signal Service has detailed an observer (Mr. J. M. Quarles) to act as assistant in Meteorological work at this station, and through the aid of the National Service about thirty sets of instruments have been secured for as many different sub-stations throughout Alabama. The observers in charge of these stations report to the College at regular intervals throughout the year, and during the crop seasons special crop bulletins, indicating the effects of the weather on the growing crops, are issued each week, prepared from the *data* sent in by these observers.

* * *

DEPARTMENT OF BIOLOGY.

During the year three bulletins and two circular letters have been prepared from this department as follows:

Circular Letter No. 1, May 14, 1890, sent to one hundred farmers of the State requesting their experience in the application of the dry poisons (Paris green and London purple), by dusting it through osnaburg bags suspended from a pole.

Circular Letter No. 2, August, 1890, sent to one hundred farmers in the State requesting specimens and notes on the diseases of cotton, variously termed "rust," "red rust," "black rust," "Frenching," etc.

Bulletin No. 15, April, 1890.—Insecticides; kerosene emulsion; how to make and apply it.

Bulletin No. 17, July, 1890.—Dry application of Paris green and London purple for the cotton worm. The replies to circular letter No. 1 were made the basis of this bulletin.

Bulletin No. 21, December, 1890.--A new root rot disease of cotton. A description of root rot of cotton caused by the root-gall nemotode, *Hetrodera radicicola,* with photograph illustrating the disease. Attention is directed to the danger of the present reckless distribution of this nematode in the roots and tubers of various plants.

There is also a popular description of the worm and its habits.

The special work of the Biologist is *phytopathology*, or the study of the diseases of plants.

The department is now engaged especially in studying the diseases of the cotton plant. From personal inspection and careful observation in the field and study in the laboratory, including also material sent in from a number of farmers in the State in answer to circular letter No. 2, a bulletin is now ready to be issued upon the diseases popularly called "black rust." In it are considered the external characters of the disease, the fungi causing it, the progress of the disease, and various current theories regarding the cause. It is illustrated with photographs of the diseased leaves and pen sketches of the most injurious fungi concerned.

A new fungous disease of cotton termed "Authracnose of cotton" has also been carefully studied and a bulletin will soon be issued upon the subject.

During the spring experiments were made to test the efficacy of certain fungicides for black rot of grapes. The Bordeaux Mixture and the Ammoniacal carbonate of copper were the principal ones experimented with.

The Bordeaux Mixture was successful to a very satisfactory degree, but the Ammoniacal carbonate of copper did not present any beneficial results.

A large number of fungi on grasses, fruit trees, forest trees, etc., have been collected and placed in the cabinet of the department for use in offering instruction and as the basis for other bulletins of economic interest.

In the laboratory the gelatine and agar agar method of studying micro-organisms is being made a special feature of the work, applying the methods to the handling and culture of fungi, and already promises important results in determining the economic importance of certain fungi as well as giving us a clearer insight into their habits and polymorphism.

Facilities for Work.

At present three rooms are occupied by the department—an office, lecture room and laboratory. The office contains the cabinent of fungi, the technical library for the department, slate table with a Zeiss microscope, reagents, gas and water fittings. The work in the office consists of the examination, indentification and cataloguing of the specimens of fungi, beside the special work peculiar to such an office. The cabinet is provided with tight drawers, for receiving the mounted specimens of fungi.

The technical portion of the Experiment Station library in the office of the Biologist contains a number of valuable works of reference, special reports, &c.

Laboratory.—Five slate top tables are devoted to the use of students, there being 10 Leitz microscopes set apart for them.

A small culture room contains the plate and teche cultures of fungi and bacteria which are being studied in relation to the plant diseases they cause. Here they can be handled and studied with little danger of contamination from the dust of the laboratory. In this room is kept a Rohrbeck Thermostat fitted with automatic cut off burner and Lautenseblager's most recent electric thermoregulator for maintaining constant temperatures.

A Winkel microscope is kept here for the examination of cultures. It consists of Stand No. 2, with condenser, triple revolver, homogeneous immersion lens 1-14, dry objectives No. 3 and No. 7, oculars 1, 3, and 5.

The other pieces of apparatus are as follows:

Steam sterilizer, dry sterilizer, domestic still, instantaneous water heater, Pasteur filter, fine and common balances, apparatus for demonstrating intramolecular breathing of yeast, the Brendel models of parasitic and sopre-phytic fungi, bacteria and yeast plants.

There are also cases containing a large quantity of the various glass vessels, paper, dry and liquid dyes and reagents, culture media, etc., required in modern investigation.

The laboratory is well lighted from southern and western exposure. All the rooms are well fitted with gas and water supply.

LIBRARY
OF THE
UNIVERSITY of ILLINOIS

AGRICULTURAL AND MECHANICAL COLLEGE.

ALABAMA POLYTECHNIC INSTITUTE

CATALOGUE

OF THE

STATE AGRICULTURAL AND MECHANICAL COLLEGE.

ALABAMA POLYTECHNIC INSTITUTE.

1891-92.

AUBURN, ALABAMA.

MONTGOMERY, ALABAMA:
BROWN PRINTING CO., PRINTERS, BINDERS AND STATIONERS.
1892.

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Jonathan Haralson	(term expires 1895)	Selma.
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Commandant and Professor of Military Science.

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Professor of Agriculture and Agriculturist of Experiment Station.

CHARLES H. BARNWELL, A. M.,
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A. F. McKISSICK, A. M.,
Adjunct Professor of Electrical and Mechanical Engineering.

J. J. WILMORE, M. E.,

Acting Director of Laboratory, and Instructor of Mechanic Arts.

C. A. CARY, D. V. S.,

Lecturer on Veterinary Science.

L. W. WILKINSON, M. Sc.,

Assistant in Chemical Laboratory.

B. A. BLAKEY, M. Sc.,
B. H. CRENSHAW, M. Sc.,

Assistant Instructors in Mechanic Arts.

H. C. Armstrong, Jr., B. Sc	Assistant Librarian.
L. E. Baker, B. Sc	Assistant in Drawing.
H. Benton, B. Sc	Assistant in Agriculture.
S. J. Buckalew, B. Sc	Assistant in Mathematics and English.
J. S. Clark, B. Sc	Assistant in Botany.
B. M. Duggar, B. Sc	Assistant in Biology.
C. B. Glenn, B. Sc	Assistant in English.
C. C. Johnson, B. Sc	Assistant in Mathematics.
F. A. Lupton, B. Sc	Assistant in Chemistry.
W. A. Marshall, B. Sc	Assistant in Physics.
A. D. McLennan, B. Sc	Assistant in Mechanic Arts.

J. H. Drake, M. D	Surgeon.
C. C. Thach	Librarian and Recording Secretary.
O. D. Smith	Corresponding Secretary.

OFFICERS

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AGRICULTURAL EXPERIMENT STATION.

BOARD OF VISITORS.

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C. A. Cary, D. V. S	Veterinarian.

ASSISTANTS:

James Clayton	Assistant Agriculturist.
J. T. Anderson, Ph. D	First Assistant Chemist.
L. W. Wilkinson, M. Sc	Second Assistant Chemist.
R. E. Noble, B. Sc	Third Assistant Chemist.
C. L. Hare, B. Sc	Fourth Assistant Chemist.
G. S. Clark	Clerk, and Assistant Botanist.

OBJECT OF THE COLLEGE.

The leading object of the College, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and the applications of science.

In its course of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts ; and at the same time the discipline obtained by the study of languages and other sciences is not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special or technical instruction given is thus based on a sound, general education.

The College, in fact, is a distinctive school of industrial science—or POLYTECHNIC INSTITUTE—a title which by resolution of the trustees is permitted to be inscribed on the catalogue—and work of great value to the youth of the State is now being accomplished by fitting them, by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the Faculty.

LABORATORIES AND FACULTIES FOR INSTRUCTION.

The College now possesses facilities for giving laboratory instruction in applied science in the following departments :

I.—IN AGRICULTURE AND HORTICULTURE.

The farm contains 226 acres and is supplied with illustrated specimens of stock of select varieties.

The agricultural experiment station, established in connection with the College, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professor in the field, garden, conservatory, stock-yard, etc., where lectures are delivered in presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

II.—IN MECHANIC ARTS.

The laboratory of Mechanic Arts is used as an auxiliary in industrial education, as a school of manual training in the arts that constitute the foundation of various industrial pursuits. The work performed by the students is *instructive* in character, as in any other laboratory, and the classes are taught in sections by a series of graded lessons under the supervision of the professor. In the lower classes of the College each student enters this school, and is assigned three exercises a week, each exercise being two hours long.

The object of this laboratory is not to teach a trade, but to educate, to discipline and train the eye and the hand, as well as the mind, and thus by associating manual and mental training, to thoroughly educate the student for the duties of life, whatever his vocation may be. There is no attempt to teach students special skill in constructing articles of commercial value, but all the exercises are systematically arranged and designed for purposes of education.

The wood department is located in a commodious hall 90 x 50 feet, and is provided with a twenty-five horse power Corliss engine, with indicator, a planer, circular saw, hand-saw, two scroll saws, a buzz planer, twenty-four stands with lathe and full set of lathe tools for each, and thirty benches for carpenter work with the tools requisite for construction.

A brick building, 30 x 87 feet with two rooms, has been constructed especially for instruction in working iron.

One room is equipped with sixteen forges and tools required for a forge department, and the other with a cupola furnace, having a capacity of 1000 pounds per hour, a core oven, a brass furnace, moulding benches and special tools for use in a foundry.

The forge and foundry rooms are furnished with a Sturtevant fan and exhauster, supplied with power from a ten horse power engine, constructed by the students in the Mechanic Arts.

The machine department occupies a brick building 30 x 50 feet, and is equipped with nine engine lathes, one speed lathe, one 20-inch drill press, one post drill, one 16-inch shaper, one 5-foot planer, one universal milling machine, a corundum tool grinder and a small emery grinder.

The chipping and filing department is arranged with benches, vises and tools for twelve students.

The tool room is well supplied with special tools for use in instruction, including a machine for grinding twist drills.

A Weston dynamo is used at present for lighting the rooms when necessary.

III.—IN PRACTICAL CHEMISTRY.

The chemical laboratory is supplied with new and modern apparatus, and in its entire equipment affords excellent facilities for instruction in practical chemistry.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of especial value to advanced students, and afford them unusual opportunities to learn the methods of scientific research. The building contains a large general laboratory that will accommodate sixty students, and lecture room with capacity for one hundred seats, and nine other rooms, all appropriated to instruction and research in chemistry.

It is equipped with the improved modern appliances necessary for instruction and investigation.

IV.—IN ELECTRICAL ENGINEERING.

The Electrical Laboratory is well supplied with modern appliances for instruction in electrical engineering. It occupies two large rooms in the basement, and is equipped with a Weston 150 volt, 20 ampere dynamo ; one Brush 6 arc-light dynamo, with regulator ; one Edison compound wound 12 kilo-watt generator ; a Crocker-Wheeler one-horse power motor and rheostat, and one alternator, made by special students.

The dynamos occupy a separate room from the Laboratory, and are operated by a 35-horse power Westinghouse vertical engine.

The equipment comprises many fine instruments of precision, Sir Wm. Thomson's standard 100 ampere balance, his graded current galvanometer, reading to 600 amperes ; also, his graded potential galvanometer, reading to 600 volts, Cardew voltmeter, reading to 150 volts ; Weston's standard ammeter and voltmeter ; ballistic reflecting galvanometer, mirror galvanometer, Thomson Watt-meter, &c.

A battery of fifty-five Julien accumulators has also been installed in the Laboratory. There is also in connection with this department a 10-horse power motor at the experiment station farm a thousand yards from the College, which is run by the Edison generator at the Electrical Laboratory.

V.—IN PHYSICS.

In the College building provision is made for laboratory work in the department of physics. Special rooms in the basement are appropriated for this purpose, and it is designed to equip this laboratory with the necessary appliances for instruction in practical physics. An improved testing machine, of 35,000 pounds capacity, has been purchased of Riehle Bros. for this laboratory.

VI.—IN MINERALOGY.

This laboratory occupies a convenient room in the basement, and is provided with tables and appliances to accommodate thirty students, with an excellent collection of minerals.

VII.—IN BOTANY.

In the work of the agricultural experiment station, investigations in botany are given special attention, and opportunities are offered advanced students for practical work in a laboratory especially fitted with microscopes, tables, a dark room for photographic work, and appliances needed for instruction and research. This department is provided with Auzoux's clastic models of seeds and flowers for teaching botany.

VIII.—IN BIOLOGY.

The laboratory in this department adjoins the lecture room of the professor, and is furnished with tables, microscopes and appliances for investigation. Each student of the class works under the supervision of the professor.

IX.—IN ENGINEERING AND SURVEYING.

The necessary apparatus for field work, including transits, levels, plane table, models of bridges, etc., is provided for the use of the students, and the customary exercises in the field are given.

X.—IN DRAWING.

All the students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. A large, well-lighted drawing room, that will accommodate fifty students, is provided with tables, lock boxes, etc.

MILITARY TACTICS.

Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties.

This department is under the charge of Lieut. J. H. Wills, 22d Infantry, U. S. A.

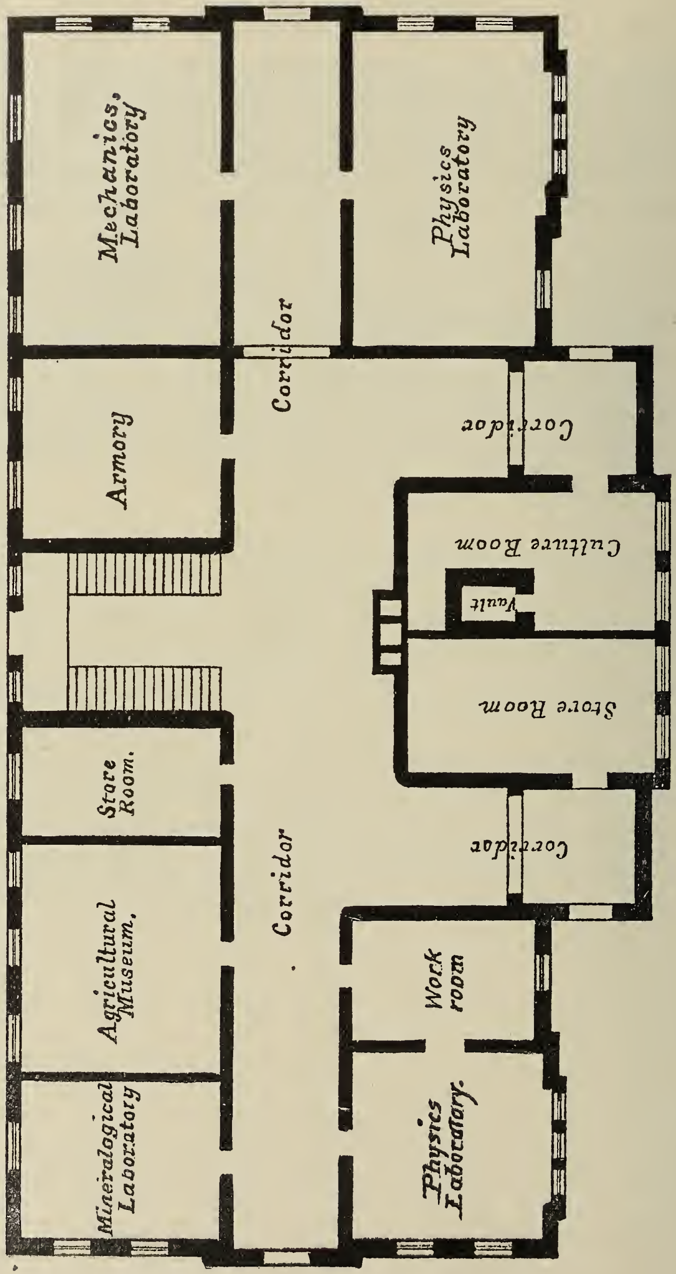
It has recently been supplied with new cadet muskets and accoutrements for the corps, and for artillery practice, with two three-inch rifle guns, carriages and limbers.

COLLEGE BUILDING.

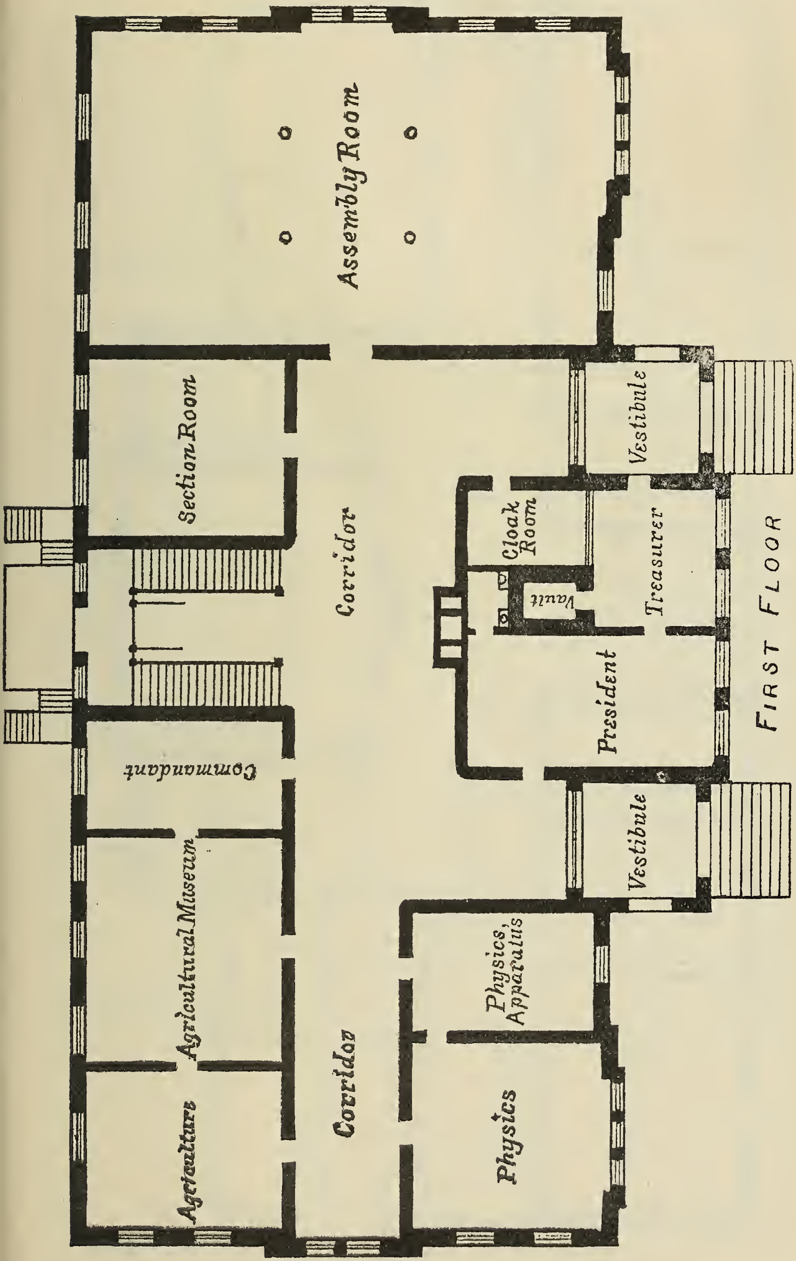
The frontispiece is a representation of the recently constructed main college building. It is 160 by 71 feet, and contains, exclusive of the basement floor, thirty-five rooms. This building is not used for dormitories for students, but is appropriated for purposes of instruction and investigation.

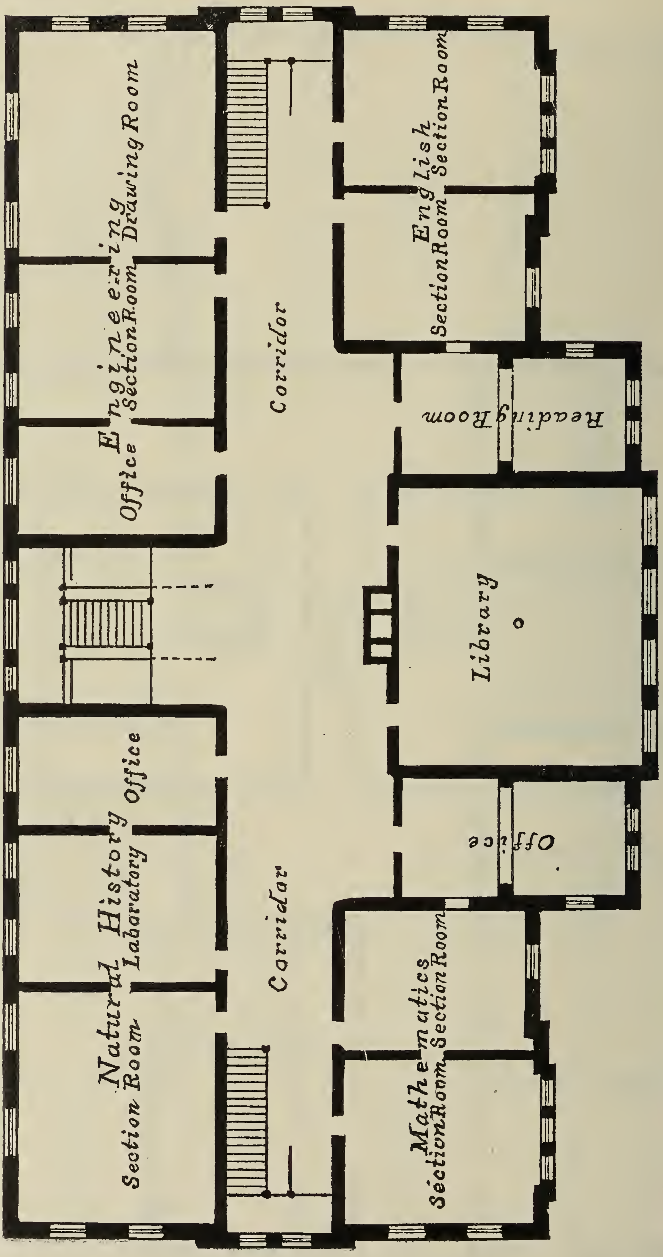
It contains the lecture rooms and offices of the professors, laboratories, library, museum, armory, etc. The illustrations of the four floors on the following pages indicate the uses to which the rooms have been assigned.

The rooms marked for the laboratories of physics and mechanics are used for electrical engineering and physics,

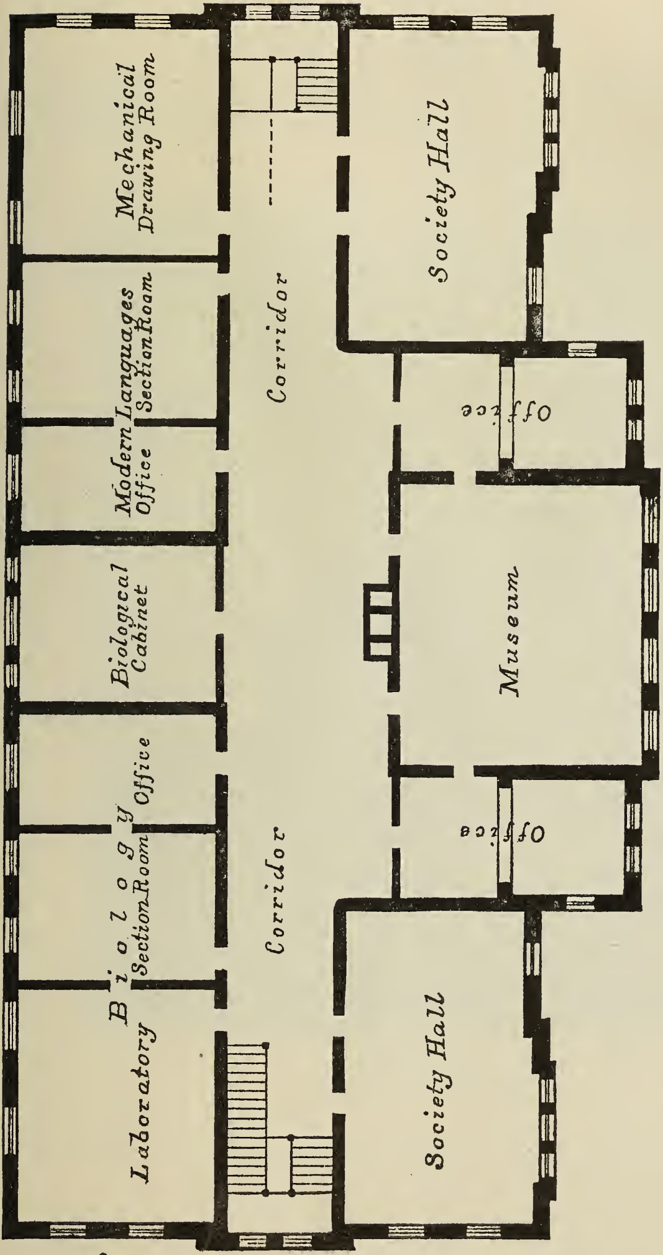


BASEMENT FLOOR


Assembly Room
Section Room
Corridor
Vestibule
Cloak Room
Treasurer
Vault
President
FIRST FLOOR
Vestibule
Commandant
Agricultural Museum
Physics, Apparatus
Physics
Corridor
Agriculture



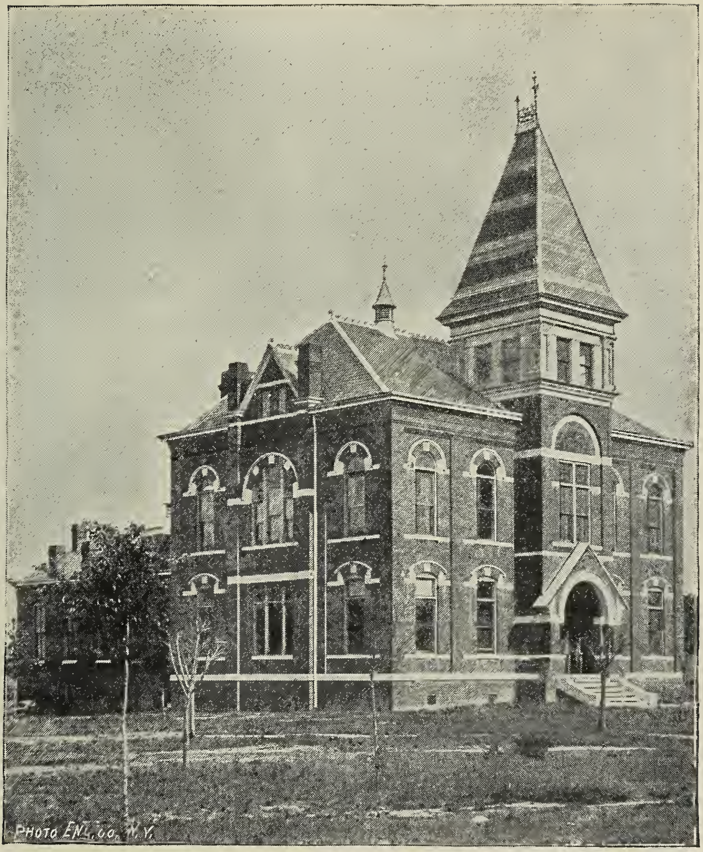
SECOND FLOOR


Mechanical Drawing Room
Modern Languages Section Room
Modern Languages Office
Biological Cabinet
Biology Office
Biology Section Room
Biology Laboratory
Corridor
Corridor
Society Hall
Office
Museum
Office
Society Hall

THIRD FLOOR

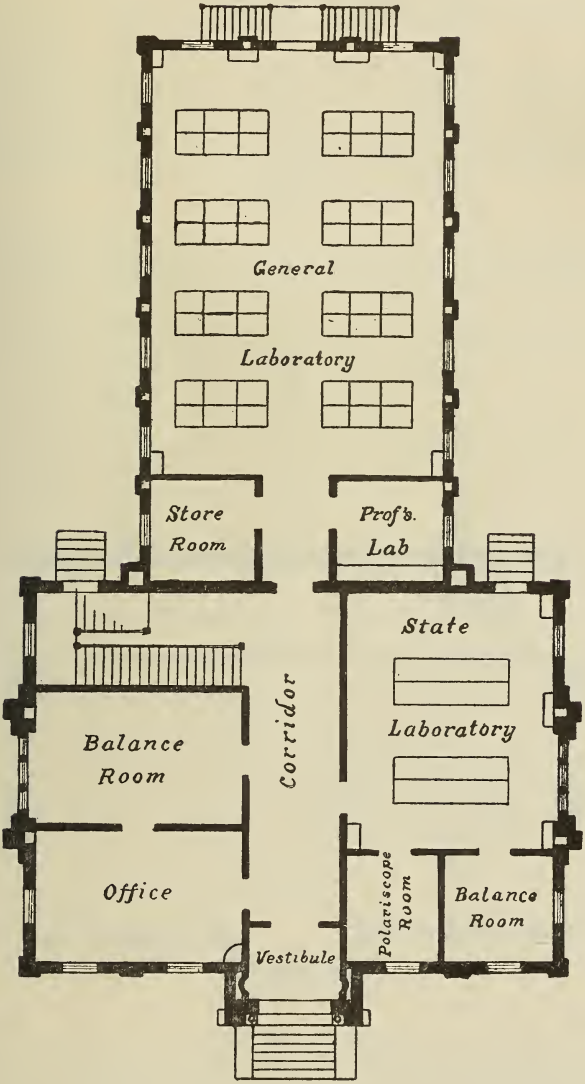
THE CHEMICAL LABORATORY,

As shown on the opposite page is a handsome two-story structure, 40 by 60 feet, with a rear projection 35 by 60 feet of one story and basement. The exterior is of pressed brick, with cut stone trimmings, and terra-cotta ornamentation.



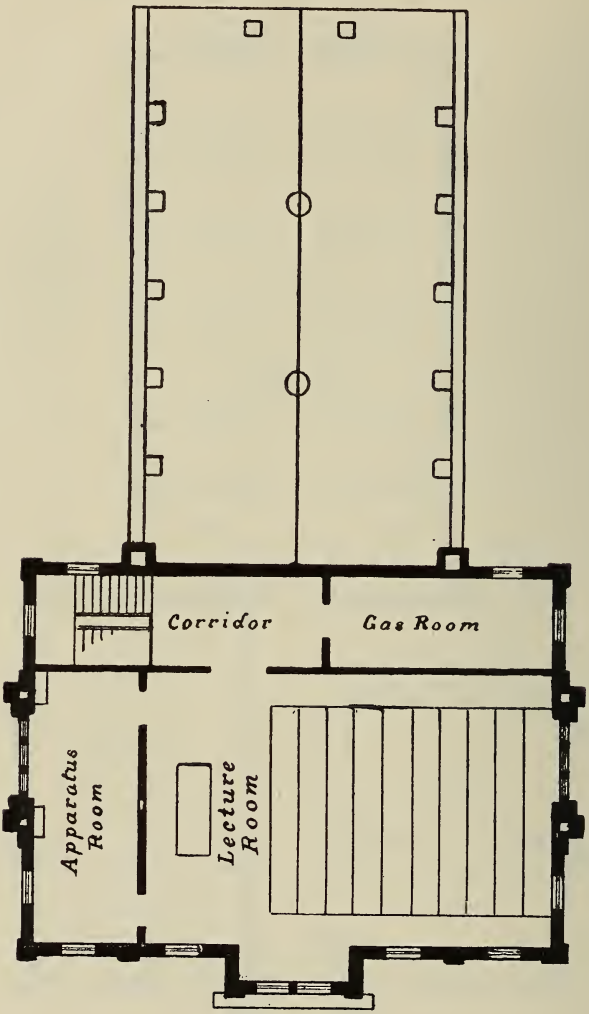
CHEMICAL LABORATORY.

LIBRARY
OF THE
UNIVERSITY of ILLINOIS



FIRST FLOOR

The first room to the left is the office of the professor, to the rear of which is the balance-room. On the right, extending the whole length of the floor, is the State laboratory and laboratory for research. Two small rooms are cut off from this, one a balance-room, and the other for the spectroscope. Leading from the rear of the main hall is the door which enters the large laboratory for general work. Two rooms are cut off from this—one for combustion furnaces and the other a private working-room.



SECOND FLOOR.

In the basement are ample accommodations for assaying and storage. The main laboratory will accommodate sixty students, and contains improved working-tables, with water, gas and every necessary appliance for chemical work. Niches in the wall opposite each working-table, with hoods, where necessary, connect with flues, and furnish the best possible means of escape for deleterious vapors, while ventilators in the ceiling furnish additional means for getting rid of noxious gases.

The height is sixteen feet in the clear, with paneled ceiling of oiled southern pine. The rooms are wainscotted throughout and finished in natural wood.

The second story contains a lecture-room and room for gas analysis. Around this lecture room are cases for containing crude and manufactured products, illustrating the subjects of agricultural and industrial chemistry, which are prominent subjects taught in this institution.

LANGDON HALL.

This is a two-story building, ninety by fifty feet. The second story is the audience hall, used for Commencement and other public occasions.

The first story is appropriated to the laboratory of Mechanic Arts.

GRADUATES IN 1891.

CLASS OF 1891.

HONOR GRADUATES.

COURSE IN CHEMISTRY AND AGRICULTURE.

Beverly Franklin Harwood	Perry.

COURSE IN MECHANICS AND ENGINEERING.

Charles Cicero Johnson	Coosa.

WITH DEGREE OF BACHELOR OF SCIENCE. (B. Sc.)

Lawrence Earnest Baker	Jefferson.
Harmon Benton	Barbour.
Frank Jarvis Bivins	Lee.
Seaborn Jesse Buckalew	Chambers.
James Albert Cox	Lee.
James Nathaniel Dean	Montgomery.
Walter Edward Fitzgerald	Georgia.
William Thomas Glass	Georgia.
Charles Bowls Glenn	Lee.
Clifford Leroy Hare	Lee.
Beverly Franklin Harwood	Perry.
Charles Cicero Johnson	Coosa.
John Calvin Kimball	Georgia.
Frank Allemong Lupton	Lee.
William Audley Marshall	Georgia.
Alexander Dowling McLennan	Barbour.
William Henry Oates	Mobile.
Petit Reynolds	Macon.
William Edwards Reynolds	Macon.
Robert Clanton Smith	Chambers.

WITH DEGREE OF MASTER OF SCIENCE.

Daniel Gillis, B. Sc	Georgia.
John Hammond Little, B. Sc	Lee.
Andrew Manley Lloyd, B. Sc	Lee.
Robert Ernest Noble, B. Sc	Calhoun.
James Fielden Wilkinson, B. Sc	Dale.

DISTINGUISHED STUDENTS.

AWARDED CERTIFICATES IN 1891.

The students of each class who secure a grade above 90 in three or more subjects are distinguished for excellence in scholarship, and are awarded

HONOR CERTIFICATES.

The following students received honor certificates in 1891.

SENIOR CLASS.

Harmon Benton	Barbour.
Frank Jarvis Bivins	Lee.
Seaborn Jesse Buckalew	Chambers.
Walter Edward Fitzgerald	Georgia.
Charles Bowls Glenn	Lee.
Clifford Leroy Hare	Lee.
Beverly Franklin Harwood	Perry.
Charles Cicero Johnson	Coosa.
John Calvin Kimball	Georgia.
William Audley Marshall	Georgia.
Alexander Dowling McLennan	Barbour.
Petit Reynolds	Macon.

HONOR STUDENTS IN JUNIOR CLASS.

COURSE IN CHEMISTRY AND AGRICULTURE.

Walter Evan Richards	Chambers.

COURSE IN MECHANICS AND ENGINEERING.

Robert Jefferson Trammell	Lee.

JUNIOR CLASS.

Elbert Cathey Averyt	Shelby.
Leigh Stafford Boyd	Lee.
Charles Allen Brown	Sumter.
Henry Ticknor DeBardeleben	Jefferson.
Henry Farris Dobbin	Florida.
William Francis Feagin	Barbour.
Raleigh Williams Green	Lee.
Raleigh Frederic Hare	Lee.
Louis Philip Heyman	Georgia.
Arthur Lyne Jones	Autauga.
Frank McLemore Mosely	Montgomery.
Walter Evan Richards	Chambers.
James L. Richey	Calhoun.
George Adams Thomas	Montgomery.
Robert Jefferson Trammell	Lee.
Thomas Felton Wimberly	Lee.

SOPHOMORE CLASS.

Robert Lee Gordon Bivins	Lee.
Massey Robert Burton	Lee.
Mims Davis	Autauga.
Joel Dumas	Wilcox.
Hamilton Rowan Johnstone	Mobile.
Nicholas Barnett Marks	Kentucky.
Hampton Knox Miller	Talladega.
Walter Merritt Riggs	South Carolina
Charles Henry Smith	Georgia.
Joel Franklin Webb	Coosa.

FRESHMAN CLASS.

Champe Seabury Andrews	Tennessee.
Howell Hunter Cherry	Lee.
Ebenezer Westley Doughty	Georgia.
Joseph Addison Driver	Perry.
Julius Confree Dunham	Montgomery.

Thomas McElrath	Coosa.
Edwin McKay	Barbour.
Paul Pratt McKeown	Florida.
Peyton Herndon Moore	Blount.
William Washington Moore	Blount.

CATALOGUE OF STUDENTS.

FOR THE SESSION 1891-92.

GRADUATE STUDENTS.

[*Residence is Alabama when State is not named.*]

NAME.	RESIDENCE.
Lawrence Earnest Baker	Jefferson.
Harmon Benton	Barbour.
Seaborn Jesse Buckalew	Chambers.
Wilmer Calloway	Montgomery.
Benjamin Minge Duggar	Hale.
Charles Bowls Glenn	Lee.
Clifford Leroy Hare	Lee.
Charles Cicero Johnson	Coosa.
Frank Allemong Lupton	Lee.
William Audley Marshall	Georgia.
Alexander Dowling McLennan	Barbour.

Senior Class.

William Sayre Allen	Montgomery.
Archie Scruggs Averett	Georgia.
Elbert Cathey Averyt	Shelby.
Leigh Stafford Boyd	Lee.
Charles Allen Brown	Sumter.
Jacob Thompson Bullen	Montgomery.
George Samuel Clark	Montgomery.
Walter Bartow Clay	Montgomery.
John Gereardt Crommelin	Montgomery.
Jesse Locke Culver	Bullock.
George William Dantzler	Autauga.
Henry Lee Davidson	Montgomery.

Henry Ticknor DeBardeleben	Jefferson.
Henry Farris Dobbin	Florida.
William Francis Feagin	Barbour.
James Edward Gachet	Lee.
Eugene Hamiter Graves	Barbour.
Raleigh Williams Greene	Lee.
Raleigh Frederick Hare	Lee.
Louis Philip Heyman	Georgia.
Arthur Lyne Jones	Autauga.
Robert Dibrell McAllister	Georgia.
Frank McLemore Mosely	Montgomery.
Louis Sinclair Munford	Virginia.
Leonidas Warren Payne	Lee.
Charles Teed Pollard	Montgomery.
Walter Evan Richards	Chambers.
Edward Broadus Smith	Lee.
Signor Sidney Strong	Georgia.
George Adams Thomas	Montgomery.
Sheldon Lynn Toomer	Lee.
Robert Jefferson Trammell	Lee.
David Marshall Walker	Marengo.
David Lewis Whetstone	Elmore.
Clanton Ware Williams	Montgomery.
David Edwin Wilson	Jefferson.

JUNIOR CLASS.

Lee Ashcraft	Lauderdale.
Wallace Reverdy Bishop	Talladega.
Robert Lee Gordon Bivins	Lee.
Francis Marshall Boykin	Montgomery.
Massey Robert Burton	Lee.
Clifford Fontaine Clopton	Montgomery.
Walter Scott Crump	St. Clair.
Union Anderson Culbreath	Lee.
Clarence William Daugette	Lee.
Joel Dumas	Wilcox.
John Harris Dunstan	So. Carolina.

Daniel Benjamin Edwards, Jr	Dallas.
Thomas Gardner Foster, Jr	Montgomery.
John Henry Holt	Georgia.
Byron Watts Jones	Lee.
Thomas Litchfield Kennedy, Jr	Lee.
James Monroe Little	Lee.
James Berry Loveless	Marshall.
Nicholas Barnett Marks	Kentucky.
James David Martin	Colbert.
Edward Baker Mell	Georgia.
Hampton Knox Miller	Talladega.
Walter Merritt Riggs	So. Carolina.
John Shelton Robinson	Jefferson.
Guy Allen Shafer	Perry.
Charles Henry Smith	Georgia.
John Howard Smith	Georgia.
Henry Hamilton Smith	Montgomery.
Linton Sparks Smith	Georgia.
Rosser Colbert Spratling	Chambers.
Joel Franklin Webb	Coosa.

Sophomore Class.

George Smith Anderson	Lee.
Champe Seabury Andrews	Tennessee.
Harvey Armstrong	Missouri.
Henry Harrington Bookhart	Georgia.
John Morgan Burns	Dallas.
George Washington La Fayette Carr	Lowndes.
Howell Hunter Cherry	Lee.
William DeLamar Clayton	Lee.
Robert Park Clower	Lee.
Roseberry Covington Connor	Macon.
Robert David Conner	Macon.
Palmer Payne Daugette	Lee.
Charles Fairchild DeBardeleben	Jefferson.
Joseph Addison Driver	Perry.
Rufus Thomas Dorsey	Georgia.

Ebenezer Westley Doughty	Georgia.
Waverley Goode Duggar	Hale.
Julius Confree Dunham	Montgomery.
Charles Dunlap	Madison.
James Dunlap	Madison.
John Thomas Eckford	Lee.
Ogden Ellery Edwards	Calhoun.
Thomas Flanagan	Lee.
Robert Cherry Foy	Barbour.
Frederic Almet Fulghum	Jefferson.
Richard Billups Going	Jefferson.
James Perry Grant	Barbour.
Charles Gordon Greene	Lee.
Crosland Clarence Hare	Lee.
Thomas Gordon Harrell	Georgia.
Augustus J. Harris	Morgan.
Arnold Whitfield Herren	Elmore.
Thomas Carter Hill	Calhoun.
Robert Ford Hunter	Georgia.
Jacob Samuel Johnson	Autauga.
Remer Young Jones	Georgia.
Welborn V. Jones	Lee.
Sidney Leach	Tuscaloosa.
John D. Martin	Barbour.
Orrin Joseph McCarley	Chambers.
Thomas McElrath	Coosa.
Paul Pratt McKeown	Florida.
George Young McRee	Georgia.
Herman Meislahn	Florida.
Ernest Knoles Miller	Georgia.
Edward Beall Mitchell	Georgia.
Lauriston Greene Moore	Lee.
Peyton Herndon Moore	Blount.
William Washington Moore	Blount.
Charles Carter Newman	Lee.
Thomas Verner Ordway	Tennessee.
Joseph Priestly Orme	Georgia.

Hamilton Ormsby	Kentucky.
Peter Preer	Georgia.
Joseph Beasly Rudulph	Lowndes.
Thomas Henry Schuessler	Chambers.
Albert Somerville	Tuskaloosa.
James Edward Stanley	Georgia.
James Nelson Stephens	Barbour.
Robert Otis Stone	Mobile.
William Simeon Street	Tallapoosa.
Frederick Lloyd Tate	Russell.
Henry Curry Turner	Madison.
Thomas Luther Thomason	Randolph.
Jack Thorington	Montgomery.
William Douglass Trawick	Lee.
Frank Atkinson Vernon	Chambers.
Andrew Hearne Whitman	Lee.
Rinaldo Greene Williams	Lee.
William Dunbar Wills	Lee.
Arthur Zachariah Wright	Lee.
Cary Oscar Wright	Lee.

Freshman Class.

Daniel Spigner Anderson	Lee.
Walter Scott Askew	Chambers.
Frank Stuart Barnes	Jefferson.
David French Boyd	Lee.
Frank Asbury Boykin	Lee.
James Hardy Bradford	Lee.
Henry Clay Burr	Georgia.
Solon Lycurgus Coleman	Perry.
Robert Mullins Collins	Missouri.
Wiley Davis Crenshaw	Tallapoosa.
James Marquis DeLacy	Russell.
Sir Hugh DeLacy	Russell.
Clarence Eugene DuBose	Lee.
Robert Eugene Dumas	Wilcox.
Leonidas Dunaway	Wilcox.

Henry Drayton Evins	Florida.
Morrie Louis Falk	Marengo.
Charles Grigsby Foulks	Dale.
Benjamin Browning Haralson	Dallas.
Sumter Lea Harwood	Perry.
John Fletcher Heard	Lee.
John Thomas Hill	Randolph.
William Hardy Hill	Randolph.
Claud Holston	Lee.
Smith Graham Howard	Dallas.
Thomas Arnold Hurt	Macon.
William Coats Hurt	Macon.
Frederick Ingate	Mobile.
George Oliver Janney	Montgomery.
Paul Adolphus Lewis	Sumter.
Steven Edmund Martin	Lowndes.
Cary Park McElhaney	Lee.
William Cunningham McMillan	Talladega.
John Robert McNab	Barbour.
Andrew Hamilton Milstead	Elmore.
William Page Molette	Dallas.
William Flournoy Moore	Butler.
George Haden Oglesby	Texas.
Thomas Winfrey Oliver	Montgomery.
Henry Hinds Peevey	Madison.
Tilden Hendricks Phipps	Georgia.
Thomas Jefferson Poole	Georgia.
Charles Llewellyn Pinkston	Chilton.
Benjamin Fitzpatrick Russell	Tallapoosa.
Walter Russell Shafer	Perry.
Percy Hilton Smith	Georgia.
Robert Mailard Stephens	Barbour.
Tyler McCuin Swann	Randolph.
Felix Stanley Thomas	Lee.
Hugh Pearson Thornton	Jefferson.
Harvey Casie Tuttle	Macon.
Robert Edward Lee Weathers	Randolph.

Robert Patton Weeden	Lauderdale.
John Adams Wills	Lee.
James Alexander Wilson	Franklin.
Frank Lewis Whitman	Lee.
Eugene Glover Wing	Clark.
John Meadows Wolfenden	Florida.

Sub–Freshman Class.

Percy Alexander Bryant	Baldwin.
James Washington Culver	Lee.
Walter Earnest Culver	Lee.
James Artemus Culver	Georgia.
Walter Micajah Eckford	Lee.
Emil Ernest Erhart	Florida.
Charles Warner Etheredge	Georgia.
Jacob Herman Feist	Baldwin.
Samuel Ananias Gordon	Lowndes.
James Amos Griffin	Lee.
Mitchell Jackson Howard	Coosa.
John Asa Hudson	Georgia.
Frank Ernest Jackson	Lee.
John Alexander Jackson	Lee.
James Jacob Lampley	Barbour.
Oscar William Longshore	Randolph.
John Summerville Long	Pickens.
Benjamin Bufford McGehee	Lee.
James Waller Means	Florida.
Edwin Allen Oliver	Dallas.
George Emmet Pace	Pike.
Henry Wilson Pond	Coosa.
Charles Lynn Pringle	Washington.
Edwin Lightfoot Reese	Florida.
John Milton Shettleworth	Florida.
Asa Eugene Tatom	Barbour.
Seldon Edgar Thomas	Florida.
Leroy Jack Upshaw	Barbour.

Charles Wilson	Franklin.
Frederick Henry Winston	Lee.

SPECIAL STUDENTS.

Thomas Jackson Boyd	Lee.
Henry Crommelin	Montgomery.
Aaron Thomas Colley	Pike.
Walter Caldwell Darwin	Madison.
Herbert Armstead Goldthwaite	Montgomery.
Alfred Flournoy Griggs	Georgia.
Francis Gustavus Hendrick	Pike.
Mims Lamar Howard	Autauga.
John Robert Hinson	Lowndes.
Clifton Arthur Jones	Lee.
Henry Clay Jones	Montgomery.
George Augustus Klie	Marengo.
Frank Inman McRee	Georgia.
George Simonton Means	Florida.
Joseph Samuel Pou	Lee.
Graham Golson Vaughan	Dallas.
James Monroe Watkins	Pike.

SUMMARY.

Graduates	11
Senior Class	36
Junior Class	31
Sophomore Class	72
Freshman Class	58
Special Students	17
Total in College Classes	225
Sub-Freshman Class	30
Total	255

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	225	Agriculture	117
History	137	Physics	108
French	26	Botany	64
German	11	Geology	39
Latin	72	Civil Engineering	35
Mental Science	15	Electrical Engineering	13
Political Economy	33	Drawing	193
Mathematics	212	Mechanic Arts	152
Chemistry	123	Military Tactics	241
Analytical Chemistry	56	Photography	15
Biology	12		

Military Organization.

1891-92.

President,

W. L. BROUN.

Commandant,

JOHN H. WILLS, 1st Lt. 22d Infantry.

Major,

L. E. BAKER.

Surgeon,

J. H. DRAKE.

Battalion Staff,

Cadet 1st Lieutenant G. A. THOMAS, Adjutant.
Cadet 1st Lieutenant D. L. WHETSTONE, Quartermaster.
Cadet Sergeant JOEL DUMAS, Sergeant Major.
Cadet Sergeant J. H. HOLT, Quartermaster Sergeant.

Cadet Captains.

1. C. A. Brown,
2. J. E. Gachet,
3. H. F. Dobbin,
4. W. F. Feagin.

Cadet 1st Lieutenants.

1. J. T. Bullen.
2. A. L. Jones,
3. W. B. Clay,
4. H. L. Davidson,
5. J. G. Crommelin,
6. H. T. DeBardeleben,
7. R. W. Greene,
8. R. J. Trammell.

Cadet 2d Lieutenants.

1. E. H. Graves,
2. D. E. Wilson,
3. F. M. Mosely.
4. C. T. Pollard.

Cadet 1st Sergeants.

1. C. H. Smith,
2. W. S. Crump,
3. R. C. Spratling,
4. E. B. Mell.

Cadet Sergeants,

1. W. R. Bishop,
2. L. S. Smith,
3. J. H. Dunstan,
4. R. E. L. Bivins,
5. W. M. Riggs,
6. H. K. Miller,
7. T. G. Foster, Color Sergeant,
8. M. R. Burton,
9. J. F. Webb,
10. F. M. Boykin,
11. J. M. Little,
12. G. A. Shafer,
13. C. W. Daugette,
14. T. L. Kennedy, Jr.
15. H. H. Smith.

Cadet Corporals.

1. P. P. McKeown,
2. C. S. Andrews,
3. J. S. Johnson,
4. R. T. Dorsey, Jr.,*
5. Jack Thorington,
6. Charles Dunlap,*
7. A. W. Herren,
8. R. C. Foy,
9. F. A. Fulgham,
10. J. C. Dunham,*
11. W. W. Moore,
12. G. S. Anderson,
13. R. P. Clower,
14. C. G. Greene,*
15. R. C. Conner.

Note.—*Denotes Color Corporal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be of good moral character. To enter the fourth class the applicant must be not less than fifteen years of age, and should be qualified to pass a satisfactory examination on the following subjects:

1. Geography and History of the United States.
2. English—(a) An examination upon sentences containing incorrect English. (b) A composition giving evidence of satisfactory proficiency in spelling, punctuation, grammar and division into paragraphs.
3. Mathematics—(a) Arithmetic, including fundamental operations; common and decimal fractions; denominate numbers, the metric system; percentage, including interest and discount; proportion; extraction of square and cube roots. (b) Algebra, to quadratic equations.

Those applicants who desire to continue the study of Latin should be qualified to pass a satisfactory examination in Latin grammar and the first two books of Cæsar, in addition to the above subjects.

For admission to the higher classes, students should be prepared to stand a satisfactory examination on all the studies of the lower classes, as shown in the courses of study. Where opportunity has not been offered to pursue special studies required at this College, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held on Wednesday, the 14th of September, the day on which the sessions opens. Candidates will also be examined during the session, when application is made for admission.

Applicants who are not prepared to stand the entrance examinations for full admission to the Freshman class are admitted to the sub-college department.

They will be advanced to full admission to the Freshman class when they are qualified to pass satisfactorily the required examinations.

Students upon their arrival at Auburn will report immediately to the President. No student will be admitted to a recitation in any class previous to matriculation.

NUMBER OF EXERCISES REQUIRED.

All students are required to have not less than fifteen recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week and in all give twenty-seven exercises per week required.

SPECIAL STUDENTS.

Students who are qualified to prosecute the studies of the junior class, and those over twenty-one years of age who are not candidates for a degree, are permitted to take, with the advice of the Faculty, the subjects of study they may prefer and for which they may be qualified ; all other students will be assigned to one of the regular prescribed courses of study, unless otherwise ordered by the Faculty.

Regular students who fail to pass satisfactory final examinations in any one study become special students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examinations in those subjects in which they were found deficient.

Students candidates for a degree, who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greater number of studies, and their names are so placed in the Catalogue.

COURSES OF INSTRUCTION.

The courses of study include the Physical, Chemical and Natural Sciences, with their applications ; Agriculture, Biology, Mechanics, Astronomy, Mathematics, Engineering, Civil, Electrical and Mechanical Drawing, English, French, German and Latin Languages, History, Political Economy, Mental and Moral Sciences.

These studies are arranged in regular courses so as to offer a liberal and practical education as a preparation for the active pursuits of life.

There are three degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. Sc.) and requiring four years for its completion :

I. Course in Chemistry and Agriculture.
II. Course in Mechanics and Engineering.
III. General Course.

There are also two partial courses, each requiring two years for its completion :

IV. Two Years' Course in Agriculture.
V. Two Years' Course in Mechanic Arts.

Course I includes theoretical and practical instruction in those branches that relate to chemistry and agriculture, and is especially adapted to those who propose to devote themselves to agriculture or chemical pursuits.

Course II includes the principles and applications of the sciences that directly relate to civil, electrical and mechanical engineering, and is adapted to those who expect to enter the profession of engineering.

Courses III has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as of those who propose ultimately to engage in teaching, or in some commercial or manufacturing business.

Courses IV and V have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and take one of the regular degree courses.

Students who complete either of these two year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

Those who have completed the general course in each department of the school of Mechanic Arts, and are qualified, can enter upon a more extended technical course in Mechanical Engineering.

PREPARATORY COURSE IN PHARMACY.

Students who expect to become practical pharmacists can enter upon a special course of Chemistry and Natural History and occupy all their time in the laboratories of these departments, under the immediate direction of the professors. With the excellent facilities offered in the chemical and botanical laboratories, scientific preparation of great value to the practical pharmacist can be obtained.

COURSE IN MINING ENGINEERING.

Students who have received the degree of B. Sc. in Engineering, or who have prosecuted an equivalent course of study, can enter upon a special course of Mining Engineering, which includes the following subjects of study, and will require a residence of one year :

Industrial Chemistry, Assaying, Reduction of Ores, Mineralogy, Economic Geology, Mining Machinery, Drifting, Tunnelling, Timbering, Ore Dressing, and the various operations connected with the exploitation of mines.

This course of study will be under the charge of the Professors of Chemistry, Engineering and Natural History.

SPECIAL ONE YEAR COURSE IN AGRICULTURE.

Young men over twenty-one years of age who desire to study Agriculture will be permitted, without examination, to enter any class under the Professor of Agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied.

They can attend the lectures in Agriculture in all the classes and engage in the practical work at the experimental station, in the field, stock-yard, dairy, garden, orchard and vineyard, etc., and may thus, in one year, acquire valuable practical knowledge of Scientific Agriculture.

LABORATORY INSTRUCTION.

Laboratory instruction constitutes an important feature in the courses of education provided for the students of this College, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I.—CHEMISTRY.
II.—ENGINEERING, FIELD WORK, SURVEYING, ETC.
III.—AGRICULTURE.
IV.—BOTANY.
V.—MINERALOGY.
VI.—BIOLOGY.
VII.—TECHNICAL DRAWING.
VIII.—MECHANIC ARTS.
IX.—PHYSICS.
X.—ELECTRICAL ENGINEERING.

I.—COURSE IN CHEMISTRY AND AGRICULTURE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English.
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Labor'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History.	2. History.	3. Botany (a)
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture.	3. Agriculture.	3. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Industrial Chemistry.	3. Industrial Chemistry.	3. Industrial Chemistry.
2. Agriculture.	2. Agriculture,	2. Agriculture.
4. Botany. (Lab'y.)	4. Botany. (Lab'y.)	4. Botany. (Lab'y.)
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
9. Chemical Laboratory.	9. Chemical Laboratory.	9. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.
3. Military Drill.	3. Military Drill.	2. Military Drill.

(a) Begins March 1st.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2 Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
2. Biology.	2. Biology.	2. Biology.
2. Agricultural Chemistry	2. Agricultural Chemistry	2. Agricultural Chemistry
1. Military Science.	1. Military Science.	1. Military Science.
9. Chemical Laboratory.	9. Chemical Laboratory.	2. Chemical Laboratory.
2. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

II.—COURSE IN MECHANICS AND ENGINEERING.

The numerals opposite the subjects indicate the number of hours per week,

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
5. English.	5. English.	5. English,
2. History.	2. History.	2. History.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Elementary Physics.	3. El. Physics.	2. Agriculture.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

SOPHOMORE CLASS.

First Term,	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
2. History,	2. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Agriculture (b)	3. Agriculture (b).	3. Agriculture (b).
3. Drawing.	3. Drawing.	3 Drawing.
6. Mechanic Art Lab'y.	6 Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

(a) Or History continued. Botany begins March 1st.

(b) For Agriculture may be substituted French or German or work in the Chemical Laboratory,

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English, French or German.	3. English, French or German.	3. English, French or German.
3. Physics.	3. Physics.	3. Physics.
5. Mathematics.	5. Mathematics.	5. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
4. Lab'y, Mineralogy (a).	4. Lab'y, Mineralogy (a)	6. Field Wrk, Engin'g (a)
4. Field Work, Engin'g.	4. Field Work, Engin'g.	3. Military Drill.
3. Military Drill.	3. Military Drill.	

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature (b).	5. Political Economy (b).	2. Political Economy (b).
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. Mathematics.	3. Mathematics.	4. Mathematics.
5. Engineering.	5. Engineering.	5. Engineering.
5. Drawing.	5. Drawing.	5. Drawing.
1. Military Science.	1. Military Science.	1. Military Science.
Field Work, Engineer'g	Field Work, Engineer'g	Field Work, Engineer'g

III.—GENERAL COURSE.

The numerals opposite the subjects indicate the number of hours per week.

FRESHMAN CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
2. History.	2. History.	2. History.
5. Latin.	5. Latin.	3. Latin.
5. Mathematics.	5. Mathematics.	6. Mathematics.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	2. Agriculture.
3. Military Drill.	3. Military Drill.	6. Mechanic Arts.
		3. Military Drill.

(a) Or Mechanic Arts.

(b) For Eng. Lit. and Pol. Econ. may be substituted French or German.

SOPHOMORE CLASS.

First Term.	*Second Term.*	*Third Term.*
5. Latin.	5. Latin.	5. Latin.
2. History.	2. History.	3. Botany (a).
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
3. Drawing.	3. Drawing.	3. Drawing.
6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

JUNIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	3. English.
3. Physics.	3. Physics.	3. Physics.
3. Mathematics.	3. Mathematics.	3. Mathematics.
3. French.	3. French.	3. French.
3. Latin.	3. Latin.	3. Latin.
3. German.	3. German.	3. German.
1. Military Tactics.	1. Military Tactics.	1. Military Tactics.
6. Laboratory Work (b).	6. Laboratory Work (b).	6. Laboratory Work (b).
3. Military Drill.	3. Military Drill.	3. Military Drill.

SENIOR CLASS.

First Term.	*Second Term.*	*Third Term.*
2. English Literature.	2. Political Economy.	2. Political Economy.
2. Mental Science.	2. Mental Science.	2. Mental Science.
2. Physics.	2. Astronomy.	2. Astronomy.
2. Geology.	2. Geology.	2. Geology.
3. French.	3. French.	3. French.
3. German.	3. German.	3. German.
2. Latin.	2. Latin.	2. Latin.
1. Military Science.	1. Military Science.	1. Military Science.
English Thesis.	English Thesis.	English Thesis.

(a) Or History continued. Botany begins March 1st.

(b) The student may elect the Laboratory o fany department for which he may be qualified.

IV.—TWO YEARS' COURSE IN MECHANIC ARTS.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
. English.	5. English.	5. English.
. History.	2. History.	2. History.
. Mathematics.	5. Mathematics.	6. Mathematics.
. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
. Drawing.	3. Drawing.	3. Drawing.
. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.	6. Mechanic Art Lab'y.
. Military Drill.	3. Military Drill.	3. Military Drill.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. Physics.	3. Physics.	3. Physics.
3. Drawing.	3. Drawing.	3. Drawing.
2. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.	12. Mechanic Art Lab'y.
3. Military Drill.	3. Military Drill.	3. Military Drill.

V.—TWO YEARS' COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.	*Second Term.*	*Third Term.*
. English.	5. English.	5. English.
. History.	2. History.	2. History.
. Mathematics.	5. Mathematics.	6. Mathematics.
. Elementary Physics.	3. Elementary Physics.	2. Agriculture.
. Drawing.	3 Drawing.	3. Drawing.
. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.	4. Mechanic Art Lab'y.
. Military Drill.	3. Military Drill.	3. Military Drill.
. Practical Agriculture.	2. Practical Agriculture.	2. Practical Agriculture.

SECOND YEAR.

First Term.	*Second Term.*	*Third Term.*
3. English.	3. English.	2. English.
5. Mathematics.	5. Mathematics.	5. Mathematics.
3. General Chemistry.	3. General Chemistry.	3. General Chemistry.
5. Agriculture.	5. Agriculture.	5. Agriculture.
2. Practical Agriculture.	12. Practical Agriculture.	12. Practical Agriculture,
3. Military Drill.	3, Military Drill.	3. Military Drill,

SCHEDULE OF EXERCISES.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I. 8–9	4. Algebra. 3. Latin 2. French. 1 and 2 Drawing. 4. Mechanic Arts	4. Geometry. 3. Latin. 2. German. 1 and 2 Drawing. 2. Botany. 1. Mental Science.	4. Algebra. 3. Latin 2. French. 1 and 2 Drawing. 2. Practical Agri. 4. Mech Arts.	4. Geometry. 3. Latin 2. German. 1 and 2 Drawing. 2. Botany 1. Mental Science.	4. Algebra. 3. Latin. 2. French 1 and 2 Drawing. 2. Practical Agri. 4. Mechanic Arts. 1. Biology.	Exerc's in Elocution
II. 9–10	4. English. 3. Chemistry. 2. Engineering. 2. Latin. 1. Calculus. 1. French. 4. Mech. Arts.	4. History. 3. Agriculture. 2. Engineering. 2. Botany. 1. Physics.	4. English. 3. Chemistry. 2. Engineering. 2. Latin. 1. Calculus. 1. French. 4. Mech. Arts 2. Practical Agri	4. History. 3. Agriculture. 2 Engineering. 2. Botany. 1. Physics.	4. English. 3. Chemistry. 2. Engineering. 1. Biology. 1. Calculus. 1. French. 2. Latin. 4. Mech. Arts. 2. Practical Agri.	Military Drill.
	MONDAY.	TUESDAY	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
III. 10–11	3. English. 2. Physics. 1. German. 1. Engineering 1. Biology 3. Botany (2. 3).	3 History (1 2). 3. Botany (2 3) 1. Engineering. 4. English	3. English. 2. Physics. 1. German. 1. Engineering. 1. Biology	3. History (1. 2). 3. Botany (2. 3). 1. Engineering. 4. English	3. English. 2. Physics. 1. German 1. Engineering.	2. German. 4. Mech. Arts, 1 Sec. 3. Mech. Arts, 2 Sec. 1. 2. Machine Work. Laboratory Work Field Work, Eng'ng.

IV. 11–12	4. Physics (1. 2). 4. Agriculture (3). 4. Latin (1. 2). 3. Drawing. 2. Mathematics. 2. Chemistry. 1. English (1). 1. Polit. Econ. (2.3)	4. Mech. Arts 1 Sec 4. Latin. 3. Drawing. 2. Agriculture. 2. Mathematics. 1. Chemistry.	4. Physics (1. 2). 4. Latin. 3. Agriculture. 2. Mathematics. 2. Chemistry. 1. English (1). 1. Political Economy (2. 3).	4. Mechanic Arts 1 Sec. 4. Latin. 2. Agriculture. 2. Mathematics. 1. Chemistry.	4. Physics (1. 2). 4. Agriculture (3). 4. Latin (1. 2). 3. Drawing. 2. Mathematics, 2. Chemistry. 1. Military Science	4. Mech. Arts 1 Sec. 3. Mech. Arts 2 Sec. 1 & 2. Machine Work Field Work, Eng'ng. Laboratory Work.
V. 12–1	4. *Drawing. 3. Mathematics. 2. English.	4. Mech. Arts 1 Sec 3. Mathematics. 2. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Latin.	4. Mechanic Arts [1 Sec. 3. Mathematics. 1. English. 1. Geology.	4. Drawing. 3. Mathematics. 1. Latin.	Mechanic Arts. Laboratory Work.
P. M.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
VI VII 2–4	4. Mech. Arts 2 Sec 3. Mech. Arts 1 Sec 3. Field Work Agr. 1 & 2 Laboratory. 1 & 2 Field Work Eng'ng.	3. Mech. Arts 2d & 3d Sec. 2. Mineralogy Laboratory. 2. Mech. Arts. Military Drill (*)	4. Mech. Arts 2 Sec 3. Mech. Arts 1 Sec 3. Field Work Agr 1 & 2 Laboratory Chem. 1 & 2 Field Work Eng'ng Exer's in Elocut'n	3. Mech. Arts 2d and 3d Sec. 2. Mineralogy Laboratory. 1. 2. Mech. Arts. Military Drill, (*)	4. Mech. Arts. 2 Sec. 3. Mech. Arts 1 Sec. 3 Field Work Agr. 1 & 2. Lab'ry Chem 1 & 2. Field Work Eng'ng Exer's in Elocut'n	

Chapel services daily at 7:50 A. M.
Numbers prefixed denote classes,—1 denotes Senior, 2 Junior, &c. Numbers affixed—(1), (2), (3). denote terms.
*From 4:30 to 5:30 P. M.

DEPARTMENTS OF INSTRUCTION.

PHYSICS AND ASTRONOMY.

PRESIDENT BROUN.

The instruction is given by recitations from text-books and lectures, illustrated by experiments. The first part of the course is occupied with Elementary Rational Mechanics, treated graphically.

This is followed by a full discussion of Molecular Mechanics ; while due prominence is given to principles, frequent reference is made to the applications of science.

The studies of the junior class include the properties of matter, units of measure, force, work, energy, kinematics, kinetics, mechanic powers, friction, pendulum, molecular forces of solids, liquids and gases, theory of undulations, heat, electricity, magnetism, etc.

The studies of the senior class include Optics, Astronomy and Meteorology.

Text-Books.—In Physics, Atkinson's Ganot. In Astronomy, Young.

MATHEMATICS.

PROF. SMITH.

The general course for the first two years embraces the first year, Algebra and Geometry, six books ; second year, Solid Geometry, Plane and Spherical Trigonometry, Surveying, Mensuration.

Two objects are sought to be attained : First mental discipline ; second, a thorough knowledge of the principles of pure mathematics and their practical applications.

Theoretical and practical instruction is given to the sophomore class in farm, town, and government land surveying, dividing land, mapping, plotting, and computing of areas, etc.; also in the theory, adjustment and use of instruments.

The class, in sections of six or eight, devote three afternoons a week during the second and third terms to field practice.

Mensuration includes an extended course in measurements of heights and distances, plane, rectilinear and curvilinear figures, surfaces and volumes.

The completion of this course, common to all students, lays the foundation for the pure and applied Mathematics of the Mechanical and Engineering courses. Analytical Geometry, Descriptive Geometry, and Calculus are pursued in the Mechanical and Engineering courses. Especial attention is given to their practical applications.

During the entire course, instruction in text-books is supplemented by lectures. Solutions of original practical problems are required of the student, to make him familiar with the application of principles and formulæ.

TEXT-BOOKS.

Wentworth's Algebra, Wentworth's Geometry, Wentworth's Trigonometry and Surveying, Wentworth's Analytical Geometry, Waldo's Descriptive Geometry, Taylor's Calculus.

NATURAL HISTORY AND GEOLOGY.

PROF. MELL.

Geology.—This subject is studied in the senior class, and extends through the entire session. Special attention is given to the geology of Alabama, and many illustrations are drawn from the coal and iron fields and other natural deposits of minerals in the State. The origin of ore deposits, mineral springs and geological relations of soils are carefully studied.

There is also a course of advanced work in practical Geology for the post-graduate students. This subject is. pursued by applicants for degrees of Master of Science and Mining Engineering.

The junior class in Engineering spends two terms in Mineralogy and blow-pipe work.

Botany.—The students of the Sophomore class begin the study of Botany the first of March and continue it through the session. Analytical work is made an important feature. This class is provided with plants from the fields, and taught how to determine their specific names. The work is sufficiently exhaustive to enable the student, after completing the course, to name any of the ordinary weeds and grasses that he will encounter in this section.

In the junior class, in the course of Chemistry and Agriculture, an amount of time is devoted to systematic and structural Botany, and to advanced laboratory work with the microscope in the preparation of specimens showing plant structure ; this work is sufficient to familiarize the students with the methods of plant building and cellular organization. Excellent microscopes of the most improved patterns, and all the necessary chemicals and apparatus for preparing and mounting vegetable tissues, are used by the students. A dark room is attached to this laboratory for photomicrography.

TEXT-BOOKS.

LeConte's Geology, Gray's Botany, Dana's Mineralogy, Goodale's Physiological Botany, Nelson's Herbarium and Plant Descriptions.

ALABAMA WEATHER SERVICE.

The United States Signal Service has established in Alabama a State system for collecting meteorological data relating to climatic changes. The service is now in successful operation with the central office located at this Institute. Bulletins are issued at the close of each month, compiled from reports sent from numerous stations throughout the State. An opportunity is thus offered the students in Meteorology of becoming familiar with the system operated by the Department at Washington.

CIVIL ENGINEERING AND DRAWING.

PROF. LANE.

CIVIL ENGINEERING.

The special studies of this department begin in the Junior class, and require a good knowledge of Algebra, Geometry, Trigonometry and Analytical Mechanics. They are as follows :

Junior Class.—Simple, compound, reversed and parabolic curves, turnouts and crossings, leveling, gradients, setting slope stakes, location and construction of common roads and railroads.

Senior Class,—Classification, appearances, defects, seasoning, durability and preservation of timber ; classification and description of natural building stones ; bricks and concretes ; cast and wrought iron, steel and other metals ; limes, cements, mortars and their manufacture ; paints and other preservatives ; classification of strains and a general mathematical discussion of the same ; joints and fastenings; solid and open built beams; classification, construction aud mechanics of masonry; foundations on land and in water; bridges and roofs of different kinds; their construction and strains determined mathematically and graphically; common roads, their coverings, location and construction; location and construction of railroads; navigable, irrigation, and drainage canals ; river and sea-coast improvements. Theory and practice are combined in both classes.

TEXT-BOOKS.

Junior Class.—Henck's Field Book for Railway Engineers, Gillespie's Roads and Railroads, Parson's Track.

Senior Class.—Wheeler's Civil Engineering, Von Ott's Graphic Statics.

DRAWING.

All of the students of the Freshman and Sophomore classes are required to take Drawing ; but only the students in Mechanics and Engineering in the Junior and Senior classes.

The Freshman class is taught linear and free-hand drawing. The Sophomore class is instructed in the principles of orthographic and isometric projections, shade and shadows, perspective and tinting. In the Junior class the instruction embraces a more extended course in orthographic and isometric drawing, perspective, shades and shadows and tinting; also sketches of tools and machines, plans, elevations and cross-sections of buildings and blue prints. The Senior class make topographical drawings, and drawings of machines, roofs, bridges, etc., to different scales, and blue prints. Plans, profiles and sections of railroad surveys complete the instruction in this department.

TEXT-BOOKS.

Freshman Class.—Kitchener's Geometrical Note Book, Thorne's Junior Course in Mechanical Drawing, and Davidson's Model Drawing.

Sophomore Class.—Davidson's Projections, Davidson's Practical Perspective, Keuffel & Esser's Alphabet.

Junior Class.—Davidson's Building Construction, Davidson's Drawing for Mechanics and Engineers, Plates belonging to the College, Keuffel & Esser's Alphabet.

Senior Class.—French, English and American Plates belonging to the College, Keuffel & Esser's Alphabet.

ENGLISH AND POLITICAL ECONOMY.

PROF. THACH.

OBJECTS AND METHODS.

In this department the students pursue a systematic course in the English Language and Literature.

Language is the avenue of approach to all knowledge ; the interpretation of words is the fundamental process in education of whatsoever kind. A full course of English is, therefore, considered especially important in the technical courses of study that do not include the ancient classics. Accordingly, the course of English is continued throughout the four years of the College curriculum, three hours a week, and is made obligatory upon all students, with the exception of those pursuing the two first years of the course in Latin. In this extended drill in the grammar and literature of the English language, the endeavor is made to afford a training somewhat equivalent to the ordinary course in the classical languages.

In view of the ill preparation in languages, especially in their mother tongue, exhibited by many of the candidates for admission to the Freshman Class, it is deemed advisable, for the sake of honest work, to devote a portion of the first year to grounding such students in the principles of grammar. Further, with the idea that an ability to speak and write correctly English of the present, and to appreciate the literary excellencies of standard authors, is more desirable than training in the philological curiosities, and literary crudities of Anglo-Saxon literature, the course of study in this institution is confined exclusively to the literature of Modern English.

Especial attention is given to the study of the writings, themselves, of leading English authors, since direct contact with literature is considered more profitable than information merely *about* literature.

COURSE OF STUDY.

Freshman Class.—Five hours a week; study of grammar, the principles of special and general composition, with frequent brief papers illustrating the laws studied; study of American authors, Irving, Hawthorne, Holmes.

Whitney's Essentials, Lockwood's Rhetoric, Scudder's American Prose.

Sophomore Class.—Three hours a week; study of style, analysis of selections of prose and poetry, frequent essays on historic and literary themes.

Abbott's How to Write Clearly, Genung's Rhetoric, Scudder's Selection from Longfellow, Lowell, Emerson.

Junior Class.—Three hours a week; Lectures on the History of English Literature, Logic, Critical Study of English Classics—Milton, Gray, Goldsmith, etc., Essays.

Shaw's History of English Literature, Hale's Longer English Poems.

Senior Class.—Two hours a week, first term. Principles of Criticism, Shakespeare's Julius Cæsar, Hamlet, etc.

ESSAYS AND ORATIONS.

Theory without practice is as fruitless in the study of English as in any other department of study. Practical work is indispensable to the successful teaching of English.

Besides numerous brief papers, illustrative of the subject matter of the text-books, set essays or orations are required of all these students; for the fourth class, six essays a year; six for the third; for the first and second classes, three orations each.

DECLAMATION.

The old practice of committing pieces to memory for "speaking" is cultivated as a means, both of training in the art of thinking on the feet, and of storing the mind with the diction of finished specimens of English style.

The Sophomore class is heard weekly throughout the year in sections of ten, once for an hour and a half in rehearsal, afterwards in the study hall before the body of students.

The Senior and Junior classes also deliver their orations in public.

PHILOSOPHY AND POLITICAL ECONOMY.

The entire Senior class pursues the study of Intellectual Science, twice a week, through the year; and Political Economy twice a week during the two last terms. The instruction in this department is by lectures in combination with text-books.

Intellectual Science.—Psychology defined. Value in relation to moral culture, education, and Natural Sciences.

The Relations of the Soul to matter. The argument of the materialist. Counter arguments. The Faculties of the Soul. The nature of Consciousness. Sense Perception. *Memory*, its nature, development, education. Fancy. Imagination. Nature of conceptions. Language. Judgment. Reasoning. Deduction. Induction, etc. *Porter's Intellectual Science. Political Economy.* Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades union; co-operation; *money*; credit; functions of government; taxation; tariff; education, etc. *Ely's Political Economy.* Lectures by Professor.

A Post-Graduate Course has been established in Political Economy. The texts used as the basis of the work are F. A. Walker's *Advanced Political Economy*, and Woodrow Wilson's *State.* Topics are assigned for research by the student, who is facilitated in his labor by a well chosen library, including most of the standard works on political economy and government.

CHEMISTRY.

PROF. LUPTON. ASSISTANT, L. W. WILKINSON.

Instruction in this department embraces—

1. A course of lectures in General Chemistry.
2. A course of lectures in Industrial Chemistry.
3. A course of lectures in Agricultural Chemistry.
4. Systematic laboratory work in connection with each course of lectures, for the practice of chemical analysis and chemical research.

1. Course in General Chemistry: This consists of a series of lectures (three per week) extending throughout the entire session, and includes a discussion of the fundamental principles of Chemical Philosophy in connection with the history, preparation, properties and compounds of the

metallic and non-metallic elements, with the main facts and principles of Organic Chemistry. In this course the more common applications of Chemistry to the Arts and Manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and most approved instruments necessary for presenting the subject in the most attractive and instructive form.

REFERENCE BOOKS.

Roscoe & Schorlemmer, Fownes, Frankland, Remsen, Cook's Chemical Philosophy, Chemical Journals.

2. The lectures on Industrial Chemistry (three per week) extend throughout the session, and include a discussion in detail of the processes and chemical principles involved in the most important applications of Chemistry in the Arts and Manufactures to the reduction of ores, the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufacturing products, together with models and diagrams.

REFERENCE BOOKS.

Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Richardson and Watt's Chemical Technology, Percy's Metallurgy.

3. Course in Agricultural Chemistry: This consists of lectures on Chemistry in its applications to Agriculture (two per week), and includes a thorough discussion of the origin, composition and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock and the various operations carried on by the intelligent and successful agriculturist.

BOOKS OF REFERENCE.

Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in relation with Chemistry, Scientific Journals, Reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign Agricultural Departments and Stations.

4. The course of systematic Laboratory Work: This course of practical work in the laboratory is carried on in connection with each course of lectures, and embraces the practical operation of chemical analysis and synthesis, being varied somewhat to suit the individual object of the student.

The laboratories, which are open from 9 A. M. to 5 P. M., during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation, in the qualitative and quantitative analysis of soils, fertilizers, minerals, mineral waters, technical products, etc., and in the method of prosecuting chemical researches. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the Chemical Laboratory is furnished with a work table, a set of re-agent bottles, and the common re-agents and apparatus used in qualitative and quantitative analysis. At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from the deposit.

BOOKS USED.

In Qualitative Analysis—Jones, Fresenius, Plattner.

In Quantitative Analysis—Fresenius, Sutton, Rose, Bunsen, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying.

In Agricultural Chemical Analysis—Church, Frankland. Official methods of the Association of Agricultural Chemists.

CHEMICAL LABORATORY.

[For description of the building see page 18.]

The Chemical Apparatus recently purchased for the laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to first-class laboratories, a new and improved Schmidt and Hensch's Polariscope has been imported, four short-arm Becker Balances of latest pattern, Bunsen Spectroscope, Zeiss' Microscope, and other instruments for delicate and accurate work.

BIOLOGY.

PROFESSOR ATKINSON.

Practical Biology.—This subject is presented by lectures twice a week to the senior students in Agriculture and Chemistry. The first part of the year will be devoted to the study of fungi, giving prominence to those which cause diseases of cultivated plants. This will be followed with the study of insects, including those injurious and beneficial to Agriculture. Special attention will be given to methods employed in combating the attacks of fungi and insects upon plants.

The reference books will be announced to the classes. The department contains a carefully selected library of the standard works on mycology and many rare and valuable works, besides current periodicals adapted to aid in the special investigations carried on in the laboratory.

Especial opportunities are offered to graduate students who desire to pursue advanced work and engage in original investigations.

FACILITIES FOR WORK.

At present three rooms are occupied by the department—an office, lecture room and laboratory. The office contains the cabinet of fungi, the technical library for the department, slate table with a Zeiss microscope, re-agents, gas and water fittings. The work in the office consists of the examination, indentification and cataloguing of the specimens of fungi, beside the special work peculiar to such an office. The cabinet is provided with tight drawers, for receiving the mounted specimens of fungi.

LABORATORY.—Five slate top tables are devoted to the use of students, there being 10 Leitz microscopes set apart for them.

Two small culture rooms contain the plate and test tube cultures of fungi and bacteria which are being studied in relation to the plant diseases they cause. Here they can be handled and studied with little danger of contamination from the dust ot the laboratory. In these rooms are kept Rohrbeck Thermostats fitted with automatic cut off burners and Lautenschläger's most recent thermoregulator for maintaining constant temperatures.

A Winkel microscope is kept here for the examination of cultures. It consists of stand No. 2, with condenser, triple revolver, homogeneous immersion lens 1-24 and 1-14, dry objectives No. 3 and No. 7, oculars 1, 3 and 5, and micrometer ocular.

A Winkel microscope is also kept for the use of the students, exactly like the former, except the 1-24 homogeneous immersion lens.

The other pieces of apparatus are as follows:

Steam sterilizer, dry sterilizer, domestic still, instantaneous water heater, Pasteur filter, fine and common balances, apparatus for demonstrating intramolecular breathing of yeast, the Brendel models of parasitic and sapro-phytic fungi, bacteria and yeast plants, and automatic device for rolling culture tubes of nutrient agar agar.

There are also cases containing a large quantity of the various glass vessels, paper, dry and liquid dyes and re-agents, culture media, etc., required in modern investigation.

The laboratory is well lighted from southern and western exposure. All the rooms are well fitted with gas and water supply.

A phytopathological laboratory has recently been fitted up for conducting investigations on the diseases of plants. While this constitutes part of the equipment for the Biologist in Experiment Station work, it will be at the disposal of the department for instruction.

HISTORY AND LATIN.

PROF. PETRIE.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that History is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. This casual relation of events is closely studied and the students are taught to investigate for themselves the growth of ideas, and to trace particularly their development in the United States, so as to acquire a practical knowledge of the history and present workings of our government and institutions. The knowledge acquired is rendered clear and permanent by frequent comparison of customs and laws, and also by diagrams, charts and maps. Instruction is given by lectures and text-books.

The course covers two years, and embraces the History of the United States, studies on our government and its institutions, and on general history.

TEXT-BOOKS.

First Year: Johnston's U. S. History, Macy's Our Government.
Second Year: Myer's Mediæval and Modern History.

LATIN.

In this department two objects are kept in view: a knowledge of the language, and an appreciation of the literature.

In teaching the Language the following methods are used: A systematic course is given in Etymology and Syntax. These are taught both deductively from a text-book on Grammar and inductively from the Latin text read. Latin texts are translated, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are translated into Latin on the blackboard. Simple conversation is carried on in Latin.

Special emphasis is laid upon the study of Latin Literature. In connection with each author studied in class there is prescribed a course of reading in English descriptive of his life, writings and times. The artistic value of his writings is carefully studied and discussed, and frequent comparisons are made with modern writers.

TEXT-BOOKS.

Freshman Class—Nepos, Virgil, Sallust, Grammar, Composition.

Sophomore Class—Cicero's Orations, Cicero's Letters, Livy, Composition.

Junior Class—Ovid, Tacitus, Horace.

Senior Class—Cicero's De Natura Deorum, Plautus, Terence.

AGRICULTURE.

PROF. BONDURANT.

The course of instruction in this department embraces: I, Soils; II, Plants; III, Domestic Animals.

In the Freshman class, lectures, extending through the third term of the session, treat of soils, their classification, physical defects and remedies, causes of diminished fertility, and the means used to protect them from waste and to restore fertility, and the theory and practice of surface and sub-drainage, &c. These subjects are treated with special reference to the different classes of soil in Alabama, omitting as far as possible, questions involving a knowledge of Chemistry and Botany.

In the Sophomore class, in addition to the discussion of the physical properties and treatment of soils, the methods of studying their defects and their remedies are also considered.

The sources of the important elements of plant food and their use upon different soils and plants, saving farm manures, making composts, proportioning and applying commercial fertilizers, the relation of plant growth to soil and atmosphere, terracing and grading land to prevent washing, plows and plowing, and indeed everything connected with tilling the soil, passes under review as foundation work.

Southern agriculture is then treated—the history, nature and cultivation of field crops discussed as regards their adaptation to, and treatment upon, the soils of Alabama. This occupies the first and second terms.

The third term is devoted to domestic and commercial horticulture, poultry, sheep, cattle-breeding and management of dairy, &c.

In the Junior class, stock breeding and management are completed, and a course in Pomology, including the propagation of nursery stock, planting, manuring, pruning, cultivating, harvesting and marketing every species of fruit, is treated, which occupies the second term.

In the third term, lectures are delivered upon subjects relating to agriculture, the selection, purchase, equipment and management of a farm, employment and management of labor, &c.

Landscape gardening also is taught with special reference to the improvement of country homes.

Drawings and models of agricultural implements and farm products will be used to illustrate the lectures. Reference will be made to suitable agricultural books, and especial reference to the experiments contained in bulletins of other agricultural stations, whenever applicable to the subject under discussion.

In this department, practical agriculture is combined with class instruction. Opportunities are given, and students are required in the second and third classes, to do practical field work of an educational character, under the instruction and direction of the professor, and they are graded according to their skill.

The farm instruction will embrace details of farm work, assisting in field and feeding experiments, dairy work, care and management of farm stock, machinery, propagating fruits, grafting and budding, and pruning vines and fruit trees.

MODERN LANGUAGES.

PROF. BARNWELL.

The following regular courses are given in French and German:

French.—First Year: Three recitations a week. During this year the principal object is to acquire a thorough knowledge of the elements of grammar, and a correct pronunciation, together with facility in translating ordinary French. Reading is begun at an early stage, and the principles of grammar are illustrated and impressed by frequent exercises in rendering English into French.

Second Year: Three recitations a week. During this year, the same line of work is pursued as that begun in the previous year. More difficult and varied French is read, and careful instruction is given upon the laws of grammar and the construction of the language.

German.—Two Years: Three recitations a week the first year, three a week the second year. In this course the aim and the methods are similar to those in French.

Special Courses.—In addition to these regular courses, additional classes are formed for special study in the literature, or for special study in any particular direction desired, when the number of students desiring it is sufficient.

TEXT-BOOKS.

French—First Year: Joynes-Otto's French Grammar and Introductory Reader, Super's French Reader.

Second Year: Jeanne d'Arc, L'Avare, Theatre Francias Classique, Heath's French Dictionary recommended.

German—First Year: Joynes-Meissner's German Grammar, and Joynes' Reader, Andersen's Bilderbuch ohne Bilder.

Second Year: Hauff's Karavane, Peter Schlemihl, Die Journalisten, Heath's German Dictionary recommended.

ELECTRICAL ENGINEERING.

PROF. MC KISSICK.

The students in this course will study English, French or German, Physics, Mathematics, &c., as now prescribed for the course of Civil Engineering in the Junior and Senior years; and, in addition thereto, will prosecute their studies in Electricity and Mechanics, as herein described.

COURSE IN ELECTRICAL ENGINEERING.

JUNIOR YEAR.

Five hours per week for the entire session are devoted to the study of the principles of Electricity and Magnetism. The student is made familiar with the theoretical principles by experiments, illustrations, recitations and lectures.

LABORATORY WORK.—Six hours per week are given to work in the laboratory. This includes management of batteries, construction of instruments, electrical measurements, verification of the principles upon which the measurement of currents, electromotive force and resistance are based, &c.

TEXT-BOOKS.

Ayrton's Practical Electricity, Meadowcroft's Electricity, Desmond's Electricity for Engineers, S. P. Thompson's Electricity and Magnetism, Stewart and Gee's Practical Physics.

SENIOR YEAR.

In the Senior year five hours per week are devoted to theoretical instruction in Electricity and Magnetism, supplemented by a course of lectures and practical demonstrations on the applications of electricity to lighting, electrical transmission of energy, electrical welding, telegraphy and telephony.

Encouragement is offered to advanced students for conducting original investigations, and opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students in connection with their experimental work.

LABORATORY WORK.—Six hours per week are devoted to practical laboratory work, including construction of instruments, electrical measurements, electrolysis, and relation of electrical currents to heat and mechanical work, care and tests of dynamo, the adjustment and calibration of voltmeters and ammeters, electric lighting, management and care of accumulators, energy consumed in lamps, adjustment and care of arc lamps, proper wiring of buildings, the application of electricity to street railways, magnetic measurements, tests of transformers and motors.

DRAWING AND CONSTRUCTION.—Five hours per week in the Senior year are devoted to the design and construction of electrical machinery. The student is required to make original designs of dynamos, motors, transformers, galvanometers, etc., and will be required to construct at least one piece of apparatus of his own design.

TEXT-BOOKS.

Slingo and Brooker's Electrical Engineering, S. P. Thompson's Electro Magnet, Thompson's Dynamo Electric Machinery, Fleming's Alternate Current Transformer.

REFERENCE BOOKS.

Treatise on Electricity and Magnetism, Vols. I and II, by Gordon; Electricity and Magnetism, by Clerk Maxwell; Emtage's Introduction to the Mathematical Theory of Electricity and Magnetism; Kempe's Electrical Testing, Dredge's Electric Illumination, Vols. I and II; Dynamo Electric Machinery, by Carl Hering; The Electro Motor and its Applications, by Wetzler and Martin; Electric Transmission, by Kapp; Electric Lighting, by Atkinson; Electric Light Installations, by Salomons; Alternating Currents of Electricity, by Blakesley; London Electrician; Proceedings of American Institute of Electrical Engineers.

EQUIPMENT.

The Electrical Laboratory has a complete line of batteries, call-bells, annunciators, telegraph sounders, relays, keys, magnets, and all apparatus necessary for first year students in Electrical Engineering. The equipment comprises many fine instruments of precision, Sir Wm. Thomson's standard 100 ampere balance (either for direct or alternating currents), Sir Wm. Thomson's graded current galvanometer, reading to 600 amperes; also, his graded potential galvanometer, reading to 600 volts, Cardew voltmeter (for direct or alternating currents), reading to 150 volts; Weston's standard ammeter and voltmeter, box of resistance coils; Queen's magnetic vane voltmeter and ammeter, standard $\frac{1}{3}$ micro-farad condenser and Sabine key; Thomson Watt-meter ballistic reflecting galvanometer, mirror galvanometer, and several other galvanometers for first year students. A battery of fifty-five Julien accumulators has been installed in the Laboratory, and a like battery in the department of Natural History.

In the Dynamo room the following are installed: One Weston 150 volt, 20 ampere dynamo, with rheostat; one Brush 6 arc-light dynamo, with regulator and six lamps; one Edison compound wound 12 kilo-watt generator; a Crocker-Wheeler one-horse power motor and rheostat, and one alternator, made by special students, furnish current to the laboratory and light up the different buildings.

The dynamos occupy a separate room from the Laboratory, and are operated by a 35 horse-power Westinghouse vertical engine.

This department, being provided with Sir Wm. Thomson's standard electrical instruments for exact measurements, will calibrate any ammeter or voltmeter that may be sent to the College free of expense.

An electro-motor, supplied with current from a generator at a distance of 3,000 feet, operates a gin, gin press, silo cutter and feed cutter at the Experiment Station farm. This motor not only subserves a useful purpose in the operation of these machines, but is an excellent illustration of the electric transmission of power.

MECHANIC ARTS.

J. J. WILMORE, M. E., DIRECTOR.

B. A. BLAKEY, B. H. CRENSHAW, ASSISTANTS.

The course in Manual Training covers three years, as follows: First year, wood-working—carpentry and turning; second year, pattern-making and foundry and forge work—moulding, casting and smithing; third year, machine shop—chipping and filing and machine work in metals.

This course is obligatory upon the students of the three lower classes. For satisfactory reasons a student may be excused from this laboratory work by the Faculty.

The full work of each class is six hours per week, in three exercises of two hours each.

The power for running the apparatus in this department is derived from a twenty-five horse power Harris-Corliss automatic engine, which is supplied with steam by a thirty horse-power steel horizontal tubular boiler. A steam pump and a heater for the feed water form a part of the steam apparatus. For the steam plant a substantial brick boiler-house and chimney have been erected.

The equipment for the wood-working shop comprises the following: 30 wood-working benches, each with complete set of carpenter's tools; 24 turning-lathes, 10-inch swing, each with complete set of tools; 1 double circular saw; 1 band saw; 1 board-planing machine; 1 buzz planer; 2 scroll saws (power), 1 large pattern-maker's lathe, 16-inch swing; 1 36-inch grindstone. In addition to these, the tool room is supplied with a variety of extra hand-tools for special work.

The equipment for the foundry consists of moulding-benches for 18 students, each supplied with a complete set of moulder's tools; a 14-inch cupola, with all modern improvements, capable of melting 1,000 pounds of iron per hour; a brass furnace in which can be melted 100 pounds of brass at a heat, with a set of crucible tongs, etc. Also a full supply of ladles, large and small moulding flasks, special tools, etc.

The forge shop equipment consists of 16 hand forges of new pattern, each with a set of smith's tools, anvil, etc. The blast for all the forges is supplied by a No. 3 Sturtevant steel pressure blower (which also furnishes blast for the foundry cupola), and a No. 15 Sturtevant exhaust blower draws the smoke from the fires into the smoke-flues and forces it out through the chimney.

The machine department occupies a brick building 30x50 feet, and is equipped with 6 engine-lathes (screw-cutting), 14-inch swing, 6-foot bed; 2 engine-lathes, 16-inch swing (one with taper attachment); 1 screw cutting lathe, 8-inch swing; 1 speed lathe, 10-inch swing; 1 20-inch drill press (power-feed); 1 15-inch shaper; 1 22-inch x 22-inch x 5 foot friction planer; 1 universal milling machine; 1 corundum tool-grinder (14-inch wheel); 1 bench grinding-machine (small); 1 post drill press (14-inch). A part of this room is set apart for vise-work, chipping and filing; and benches for 12 students are provided each with vise and sets of files, chisels, hammers, etc. In the tool-room is to be found a good supply of machinists' tools for general shop use, such as lathe and drill chucks, drills, reamers, taps, dies, gauges, files, cutting and measuring tools, and special appliances for machine work, with machine for grinding twist drills.

The nature of the work in each department is as follows:

FIRST YEAR.

I. A course of carpentry (hand work covering the first two terms and part of the third, or about five months).

The lessons include instruction on the nature and use of tools, instruction and practice in shop drawing, elementary work with plane, saw, chisel, different kinds of joints, timber-splices, cross joints, mortise and tenon, mitre and frame work, dovetail work, comprising different kinds of joints used in cabinet making, light cabinet work, examples in building, framing, roof-trusses, etc.

II. A course in turning, extending through the third term. The lessons comprise, first, nature and use of lathe and tools, plain straight turning caliper work to different diameters and lengths, simple and compound curves, screw plate and chuck-work, hollow and spherical turning.

SECOND YEAR.

I. A course in pattern-making, covering the first half of the first term. The work includes a variety of examples of whole and split patterns, core work, etc., giving the students familiarity with the use of patterns for general moulding.

II. A course in moulding and casting in iron and brass occupying ten weeks. The work consists for the most part

PLAN OF LABORATORY OF MECHANIC ARTS

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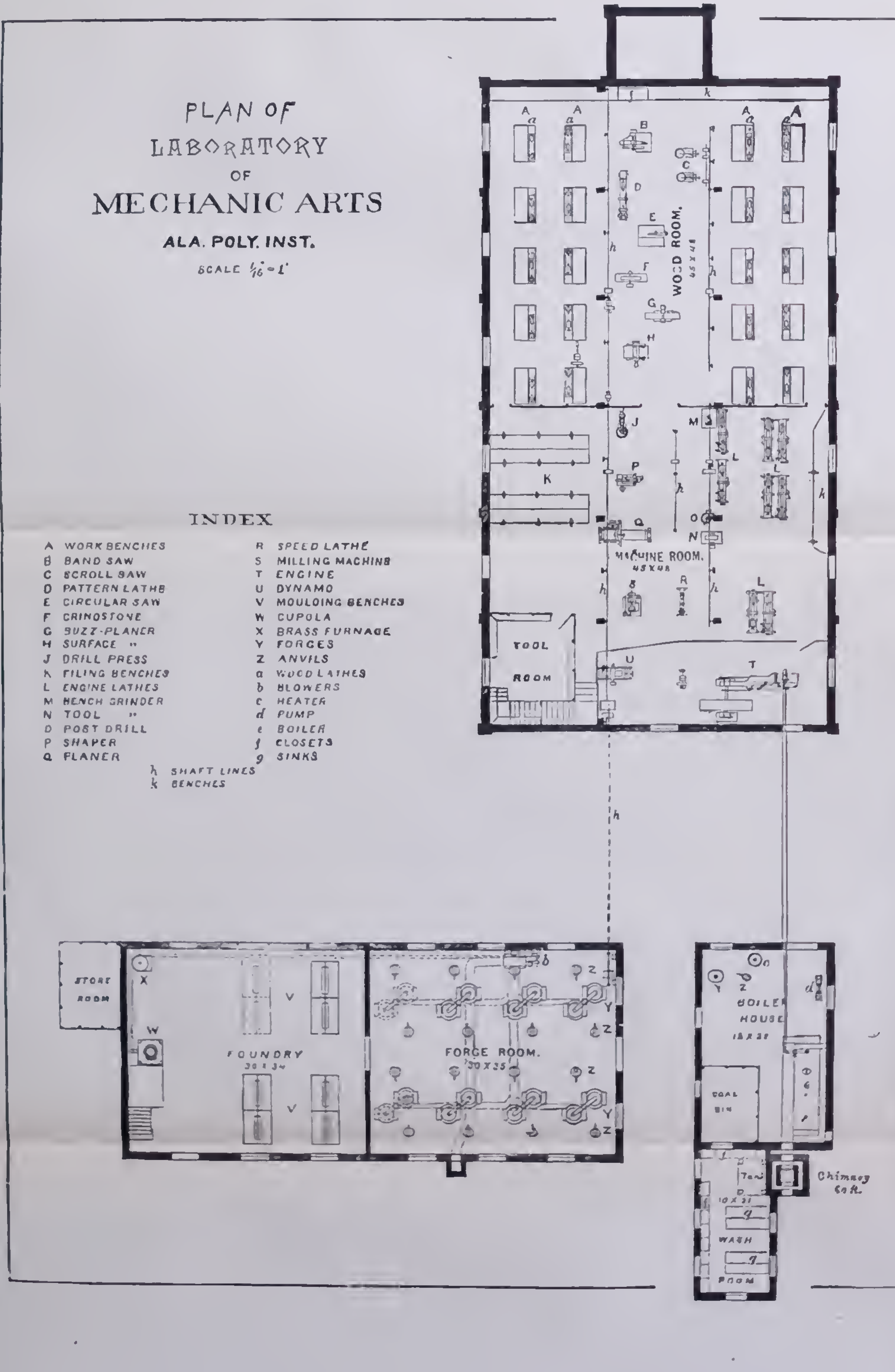

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of small articles, such as light machine parts, but a sufficient variety of forms are introduced for the student to acquire a good general and practical knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks; core work is also given, and some three part flask and some dry sand work is introduced.

The same patterns which have been previously made by students are used, besides special patterns for occasional larger or more complicated work. Instruction and practice is given in working the cupola, each student in turn taking charge of a melting.

III. A course in forge work in iron and steel, occupying the remainder of the year. The lessons are arranged so that the students, in making the series of objects, become familiar with the nature of the metals and the successive steps in working them by hand into simple and complex forms, as drawing, upsetting, bending, cutting, punching, welding by various methods, tool-forging, tempering, hardening, etc.

In connection with this second year work, a series of lectures is given on the metallurgy and working of the metals used in the industrial arts, cast and wrought iron, steel, brass, etc.

THIRD YEAR.

I. A course of chipping and filing, covering ten weeks of the first term. The lessons comprise work on cast and wrought iron; chipping to line on flat and curved surfaces, key-seating, etc.; filing and finishing to line (straight and curved), surface filing and finishing, fitting, slotting, dovetail work, sliding and tight fits, sawing, pin, screw and key filing, surface finishing with scraper, etc.

II. Machine work occupying the remainder of the year. The work includes cast and wrought iron, steel and brass :

turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling—both in lathe and drill press—reaming, boring, screw-cutting in lathe and with taps and dies, planing, slotting, etc., with planer and shaper, milling various forms with the milling machine, including exercises in making taps, reamers, etc., fitting, grinding, polishing, etc.

Lectures are also given during the year on various subjects connected with machine work in metals: Such as forms, construction and use of the various machines, cutting tools, gearing, gauges, screw threads, etc. During the last term some piece of construction work is given the classes.

Instruction is generally given, first, by black-board drawings or sketches which the student copies, with dimensions in note-book, with which each one provides himself ; thus each one works from his own notes. This is supplemented, whenever necessary, by the actual construction of the lesson by the instructor before the class, second by inspection and direction at the bench by the instructor. The construction work is made from blue prints made by the class in drawing.

MECHANICAL ENGINEERING.

J. J. WILMORE.

JUNIOR YEAR.

To receive the Degree of B. Sc. in the Electrical and Mechanical Engineering the student must complete the course of Mechanical Engineering as here described.

Principles of Mechanism.—Two terms are devoted to this subject. Under this head machines are analyized and their elementary combinations of mechanism studied. The communication of motion by gear wheels, belts, cams, screws and link-work, the different ways of obtaining definite velocity ratios and definite changes of velocity, parallel notions and quick return motions as well as the designing of trains of mechanism for various purposes, together with the theoretical forms of teeth for gear wheels to transmit the motion through these trains, are investigated under this subject. The text book work is illustrated by the study and examination of the machines in the laboratory.

The last term will be devoted to the study of the properties of steam, preparatory to the study of the Steam Engine in the Senior year. The subject of steam boilers will receive special attention, and tests will be made to determine the evaporative efficiency of the boiler, furnishing power.

Mechanical Drawing.—During the first term the students make drawings to exact scale, of some of the simpler machines. The student takes his own measurements and makes his own sketches from which to make the finished drawing.

This is followed by work intended to be supplemental to the work in Mechanism. Involute and epicycloidal gear wheels, bevel wheels and endless screws are designed and drawn to scale from data given by the instructor. During the last term each student will make working drawings of some machine in the laboratory with instruction in the making of tracings and the art of blue-printing.

Laboratory Work.—The laboratory work will consist of hand work in iron and machine work in iron, as given in the course in mechanic arts in the third year.

SENIOR YEAR.

Steam Engine.—One half the year will be given to the study of the theory and efficiency of the steam engine, with discussions of the effects of condensation in cylinder, action of fly-wheels, effect of jacketing, etc. Simple and compound engines, various valves and cut-off motions, and the pricipal types of modern engines are studied. Special attention is given to the steam engine indicator, and the student is expected to become familiar with its application and uses.

Machine Design.—In the last half of the year the subject of Machine Design will be taken up and carried on in connection with the Strength of Materials, the latter being studied mainly from actual experiments made on the testing machine. In the former, simple machines are given to work under specified conditions. The motions being laid out and the proportion of parts found by calculation.

Mechanical Drawing.—The drawing for the first half year will embrace Practical Perspective with exercises in tinting and line-shading. In the last half year the drawing will be in connection with the work in Machine Design, and machines and parts of machines will be designed and drawn to scale, with full sets of working drawings.

Laboratory Work.—The laboratory work will consist of making tests of engines under varying conditions of load and speed. These results will be carefully recorded, tabulated and filed away for future reference.

Also of making tests of the strength of the different materials of construction, stone, wood, cast and wrought iron, steel, etc. These will be tested for transverse, tensionial and compressional strains, and all results recorded and tabulated.

POST-GRADUATE WORK.

Students sufficiently qualified, who desire post-graduate work, can be accommodated to the extent of the appliances at hand. They will be expected to study up the history and development of Mechanics and Engineering, take more in detail the theory and structure of the steam engine, and solve problems in general engineering, such as designing shops for special lines of work, making drawings and specications showing the most economical arrangement of machines and transmission machinery.

TESTING APPARATUS.

For the experimental work in Mechanical Engineering the following apparatus has been provided :

A testing Machine, capable of exerting compressional, tensional and transverse strains up to 35,000.

A steam engine Indicator, planimeter, micrometer and other implements for steam engine testing.

A Harris Corliss twenty-five horse power engine, a Westinghouse thirty-five horse power engine, a steam pump, steam boilers and the use of the laboratory for special work.

TEXT AND REFERENCE BOOKS.

Stahl and Wood's Elmentary Mechanism.
Goodeve, Steam Engine.
Busbridge, Engineering Drawing Copies.
Barr, Treatise on High Pressure Steam Boilers.
Brown & Sharpe, Treatise on Gearing.
Davidson, Practical Perspective.
Grant, Odontics.
Hemenway, Indicator Practice and Steam Engine Economy.
Klein, Machine Design.
MacCord, Treatise on the Slide Valve.
Pray, Twenty years with the Indicator.
Rose, Mechauical Drawing Self-Taught.
Rose, Modern Steam Engines.
Thurston, Manual of the Steam Engine.
Appleton's Clyeopædia of Applied Mechanics.

MILITARY SCIENCE AND TACTICS.

LIEUT. J. H. WILLS, U. S. ARMY, COMMANDANT.

Military Science and Tactics are required to bo taught in this institution by law. This law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the School of the Soldier, of the Company and of the Battalion ; also in Guard Mountings, Inspections, Dress Parades, Reviews, etc.

Under section 1225, U. S. Revised Statutes, the College is provided with modern Cadet rifles and accoutrements and two pieces of field artillery. Ammunition for practice firing is used under the direction of an experienced officer. The exercises in target practice and artillery drill begin the first day of the third term, March 27th.

The following uniform of standard Cadet gray cloth has been prescribed for dress, viz.: Coats and pants as worn at West Point, with sack coat for fatigue, dark blue Cadet cap. A neat and serviceable uniform can be obtained here at $18 to $19. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for proficiency in drill, deportment and studies. Each company is officered by one Captain, two 1st Lieutenants, one 2d Lieutenant, and with a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the President on nomination of the Commandant.

The Junior Class recites once a week in the United States Infantry Tactics.

The Senior Class recites once a week in "Notes on Military Science."

VETERINARY SCIENCE.

During the second term of this session Dr. C. A. Cary delivered a course of lectures to the students in agriculture on Veterinary Science. To illustrate his instruction he used the mounted skeletons of the horse, ox, hog, and sheep with which the department of Agriculture is now provided.

Special lectures were delivered to the farmers every Saturday, and free clinics, for their benefit, conducted at the Station.

POST-GRADUATE DEGREES.

There are three Post-Graduate Degrees—MASTER OF SCIENCE, MINING ENGINEER and CIVIL ENGINEER.

A Post-Graduate Degree may be obtained by a graduate of this College, or of any other institution of equal grade, by one year's residence at the College, spent in the successful prosecution of a course of study in applied science prescribed by the Faculty.

Candidates must also present to the Faculty a satisfactory thesis, showing independent investigation upon some subject pertaining to their course of study, and must pass a satisfactory examination on the course of study prescribed. The examination is written, and also oral, in the presence of the Faculty.

Applicants for Post-Graduate Degrees are, by order of the Board, permitted to matriculate without payment of fees.

They are subject to the general regulations as other students, but are exempt from all military duty.

Resident graduates, who are not candidates for a degree, are permitted to matriculate and prosecute the studies in any department of the College, chemical laboratory, without payment of regular fees.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above 90 per cent.

Certificates of Distinction are awarded in public on Commencement day to those who obtain an average of 90 per cent. in all the prescribed studies of a regular class, and also to those who obtain three distinctions in the freshman class, four in the sophomore or junior class, and five in the senior class, provided they have satisfactorily passed all the regular examinations of that session.

PHOTOGRAPHY.

During the second term there will be given by Professor Mell a course of twelve lectures on photography. This course will be elective, and the instruction will be opened to any student who may desire to learn how to make pictures. It will be necessary for each student to provide himself with an outfit that will cost from $11.50 to $16.00.

RECORDS AND CIRCULARS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

From the record a monthly circular, or statement, is sent to the parent or guardian.

EXAMINATIONS.

Written recitations, or monthly examinations on the studies of the month, are held at the option of the professor.

At the end each term written or oral examinations, or both, are held on the studies passed over during that term.

Special examinations are held only by order of the Faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examination, can be promoted to full standing to the next higher class, only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the College shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except in extreme cases.

Examinations for degrees, or certificates of proficiency, embrace the entire subject of study in the course.

LIBRARY.

A commodious room in the new building has been appropriated to the library. It is designed to make it an important educational feature of the college. At present it contains a number of valuable reference books, books of the standard authors, and others suitable for students. During the present session the library has been increased by the addition of 3500 volumes of carefully selected standard works for general reading, and for investigation. It is kept open daily from six to eight hours for the use of students as a reading room.

DISCIPLINE.

The government of the College is administered by the President and Faculty, in accordance with the code of laws and regulations enacted by the Trustees.

Attention to study, and punctuality in attendance on recitations and all other duties, are required of every student.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapaciated to bear arms, are required to engage in these exercises.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the Cadet are manifest.

Privates of the first class may be excused by the President from all military drills, and also students over twenty-one years of age at the time of entering College, who are permitted to devote their time to one special study, as chemistry, agriculture, etc.

RELIGIOUS SERVICE.

Religious services are held every morning in the chapel.

All students are required to attend these exercises, and also to attend the church of their choice at least once on Sunday.

Opportunities are also offered for attending Bible classes every Sunday.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This Association is regularly organized, and through its weekly meetings exerts a wholesome Christian influence among the students of the College.

The first week of the session a committee of the Association will meet the trains, whose business will be to give information to, or assist in any way they can, the students entering College for the first time. The Association is commended to all the students.

The following are the officers :

R. C. Spratling, President.
E. B. Mell, Vice-President.
W. C. H. Smith, Corresponding Secretary.
J. S. Johnson, Recording Secretary.
W. F. Clayton, Treasurer.

GYMNASIUM.

The fourth floor of the college building is one large attic room, well lighted and ventilated. It has been supplied with a number of such appliances as are used in a gymnasium, and is used for athletic exercises by the students, in the afternoon, under prescribed regulations.

LOCATION.

The College is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-one feet above tide water. By statute of the State, the sale of spirituous liquors and keeping saloons of any kind are forbidden.

THESIS.

Each applicant for a degree is required to write and submit to the Faculty an essay or oration and read or deliver the same at Commencement, if required by the Faculty.

It must be given to the Professor of Engfish by the first of May.

LITERARY SOCIETIES.

There are two Literary Societies connected with the College—the Wirt and Websterian. Each has a hall in the college building.

These societies hold celebrations on the evenings of Thanksgiving Day and the 22d of February, and also Commencement week. They elect annually, with the approval of the Faculty, an orator to represent them at the close of the year.

EXERCISES IN ELOCUTION.

On every Saturday morning, immediately after chapel services, oratorical exercises in declamation and in original orations are conducted by the Professor of English, in presence of the Faculty and students.

The *first and second terms* the students of the junior and sophomore classes are exercised in original orations and declamation.

The *second and third terms* the members of the senior class read essays or deliver original orations.

SOCIETY OF THE ALUMNI.

The Annual Alumni Oration, by a member of the society, is delivered in the chapel ON ALUMNI DAY, Tuesday of Commencement week. The following are the officers of the society.

T. H. Frazer, M. D., President.

J. C. Street, Vice-President.

C. C. Thach, Treasurer and Secretary.

BOARDING.

The College has no barracks nor dormitories, and the students board with the families of the town of Auburn, and thus enjoy all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who, without permission, leave their rooms after the "call to quarters," or are guilty of any violation of orderder.

Students, after selecting their boarding-houses, are not permitted to make changes without obtaining permission from the President, and this permission is given only at the close of a term, except for special reasons.

EXPENSES.

Incidental fee, per half session	$ 2 50
Library fee, per half session	1 00
Surgeon's fee, per half session	2 50
Board per month, with fuel and lights	$12 to 15 00

These fees are payable, $6.00 on matriculation and $6.00 on February 1st. By order of the Board no fees can be remitted.

There is no charge for tuition.

For students entering after January 1st, the fees for half session only are required.

EXPENSES FOR COLLEGE YEAR.

Fees	$ 12 00	to	$ 12 00
Board, lodging, fuel and lights	108 00	to	135 00
Washing	9 00	to	9 00
Books, etc., say	8 00	to	15 00
	$137 00	to	$171 00

This does not include uniform, as the cost is not more than ordinary clothing.

CONTINGENT FEE.

A contingent fee of five dollars is required to be deposited by each student on matriculation, to cover any special or general damage to college property for which he may be liable.

At the close of the session the whole of the contingent fee, or the unexpended balance, will be refunded to the student.

AMOUNT OF DEPOSIT.

Each student on entering College should deposit with the Treasurer not less than $50.00, to pay the expenses of fees, one month's board, uniform, books, etc.

UNIFORM.

A uniform of Cadet gray cloth is prescribed which all under-graduate students are required to wear during the session. The uniforms are made by contractor of cloth manufactured at the Charlottsville mills. The suit including cap, costs about $19.00; the dress coat $10.00 to $11.00. It is neat and serviceable and less expensive than ordinary clothing.

SURGEON.

The Surgeon is required to be present at the College daily, to visit the Cadets at their quarters who are reported sick, and to give all requisite medical attention without other charge than the regular Surgeon's fee, paid on entering College.

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the Treasurer of the College all funds desired for sons or wards, whether for regular charges of College fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc., when approved.

When funds are deposited, checks are drawn on the Treasurer of the College by the cadet to pay his necessary expenses. These checks are paid only when approved by the President. This approval is given only for necessary expenses, as stated in the Catalogue, unless specially requested in writing by the parent.

The College cannot be held responsible for the expenses of a student, unless the funds are deposited with the Treasurer. No student should be permitted to have a large amount of pocket money, as it only brings trouble and encourages idleness.

ACADEMIC YEAR.

The Academic Year commences on Wednesday, 14th September (second Wednesday after first Monday), and ends on Wednesday, 14th June (the second Wednesday after the first Monday), which is Commencement day.

It is divided into three terms. The first term extends from the opening of the session to the 23d of December; the second term begins January 2d, and ends March 25th; the third term continues from March the 27th to the close of the session.

RESOLUTION OF THE TRUSTEES.

The following resolution was adopted by the Trustees:

That in view of increased facilities for instruction in Agriculture and the technical departments of education now possessed by this College, especially in the department of Mechanic Arts, made possible by the recent donation from the State, the Faculty are authorized, in addition to the legal name of this College, to print on the Catalogue the words ALABAMA POLYTECHNIC INSTITUTE, as significant of the expanded system of practical instruction in industrial science in the courses of education now provided for.

DONATIONS TO LIBRARY.

Secretary of the Interior—Senate and House Reports, Mineral Resources, Consular Reports, Geological Survey, Ordnance Report, Bureau of Ethnology, Geodetic Survey., 50 vols.

Hon. John T. Morgan, Public Documents, 7 vols.

Hon. James L. Pugh, Public Documents, 2 vols.

Hon. W. C. Oates, War of Rebellion, Congressional Record, 7 vols.

Hon. Robert Porter, Superintendent of Census, Bulletins, etc.

Hon. W. T. Harris, Commissioner of Education, Pamphlets, etc , 8 vols.

Sir John B. Lawes, England, Rothamstead Memoirs, 9 vols.

Prof. Joseph H. Gilbert, F. R. S., Lectures on Agricultural Chemistry, 1 vol.

DONATIONS TO THE ELECTRICAL DEPARTMENT.

The following donations have been made to the Electrical Department by the manufacturers named:

Patrick & Carter, Philadelphia, Pa ....10 call annunciator.
W. R. Ostrander & Co., New York .... electric call bell.
Franklin Electric Co., New York .... primary battery.
John J. Murray & Co., Philadelphia, Pa .... shades.
National Electric Co., Philadelphia, P ....Warren fuse blocks.
The Kartavert Manufacturing Co., Wilmington, Del., samples of kartavert.
The Lunkenheimer Brass Co , Cincinnati, Ohio, sight feed lubricator.
The Economic Electric Manufacturing Co., Boston, incandescent lamps.
Leffel Water Wheel Engine Co., Springfield, Ohio, photographs of turbines.
The Pittsburg Reduction Co., Pittsburg, Pa., samples of aluminum and aluminum bronze.
American Electrical Works, Providence, R. I., samples of wire and cordage.
Holmes, Booth & Hayden, New York, samples of wires, cables, &c.
Maine Electric Improvement Co., Brunswick, Me., incandescent lamps.
Union Electric Manufacturing Co., Bridgeport, Conn., sample socket.
Bernstein Electric Co., Boston, Mass., combination socket and lamp.
Thomson Welding Co., Boston, Mass., ...samples of electric welding.
Alexander, Barney & Chapin, New York.........incandescent lamps.
C. S. Van Nuis, New York ....Ajax switch.
J. H. Bunnell & Co., New York ....Burnley Dry battery.
Empire China Works, Brooklyn, New York, samples of hard porcelain.
Laminar Fibre Works Co., Boston ....samples of fibre.
The Leclanche Battery Co., New York .... samples of Leclanche cells.
Interior Conduit & Insulation Co., New York .... samples of conduits.
The Bryant Electric Co., Bridgeport, Conn.. .... wall socket.
Billings & Spencer, Hartford, Conn......samples of commucator bars.

Standard Underground Cable Co., Pittsburg, Pa., samples of cables.
Bowers Bros., Chicago, Ill ....samples of electrical mica.
Solar Carbon Co., Cleveland, O , . samples of carbon, carbon brushes, battery carbons, &c.
Gethin's Electrical Manufacturing Co........Gethin's gravity battery.
New York Insolated Wire Co., New York, case of wires, cables, &c.
Western Electric Co., New York, ...samples of wire.
The Simplex Electrical Co., Boston .....samples of caoutchouc wires.
U. S. Mineral Wool Co., New York .... copper gaskets.
Southern Electric Co., Lynchburg, Va ....incandescent lamps.
Wilmot & Hobb's Manufacturing Co., Bridgeport, Conn., . steel gong.
American Circular Saw Co., Boston, samples of woven covered insulated wires.
Alfred F. Moore, Philadelphia, Pa .... samples of wires.
Union Porcelain Works, Brooklyn, N. Y., samples of porcelain goods.
The S. S. White Dental Manufacturing Co., Philadelphia, Pa., Partz acid gravity battery.
Consolidated Electric Manufacturing Co., Boston.. ....Davis' cut out.
The Standard Paint Co., New York . ...P. & B. paint.
Union Hardware Co., Torrington, Conn ....push button shells.
Wallace and Sons, Ansonia, Conn., samples of hard drawn copper wire.
The Goodrich Hard Rubber Co., Akron, O., samples of hard rubber goods.
Pass & Seymour, Syracuse, N Y.......... samples of porcelain goods.
A. W. Harris' Oil Co., Providence, R. I..................dynamo oil.
Taylor & Son, New York ....Taylor's primary battery.
The Underwood Manufacturing Co , Tolland, Conn ....belting.
Hart & Hegeman Manufacturing Co., Hartford, Conn., Hart switch.
H. T. Paiste, Philadelphia, Pa.... ....Paiste sockets.
Solar Carbon Co., Pittsburg, Pa., battery carbons, carbon brushes, electric light carbons.
Vulcanized Fibre Co., Wilmington, Del., samples of vulcanized fibre.
The Gould & Watson Co., Boston, samples of moulded mica insulators.
National Electric Manufacturing Co., Eau Claire, Wis., 30 lt, 1,000—50 volt transformer.
F. Reddiway & Co., New York ....Camel hair belting.
Atlantic Covering Co., Plymouth, Mass...............samples of wire.
Steele Johnson Manufacturing Co., Waterbury, Conn., shade holders.
The C. McIntire Co., Newark, N. J......................connectors.
A. O. Schoonmaker, N. Y.................. ....mica
T. M. Robertson, N. Y ....fibrous batteries.
N. Y. & Ohio Co., Warren, O ....incandescent lamps.
John Simmons Co., N. Y., model electric pole and lightning tapper.
The Perkins Electric Switch Co., Hartford ....socket.
H. W. Johns, Manufacturing Co., New York, sample case of pipe coverings, etc.

Jenkins Bros., New York.................... ....Jenkins valves, etc.

J. A. Roebling's Sons Co., Trenton, N. J ....samples of cables, etc

Eureka Tempered Copper Co., North East, Pa. .....commutator bars.

Pierce Bros. & Co., Leominister, Mass ....Trolley fixtures.

Wm. H. Weston & Co., Philadelphia, 50 ampere double pole quick break switch.

Dean Steam Pump Co., Holyoke, Mass., steam pump built in section.

J. W. Devol & Co., New York .... samples of "Ozokerite."

Burnhan & Sluggan Railway Appliance Co., Boston, bracket for pole.

A. J. Wilkinson & Co., Boston.................... ...nickel oil cups.

Berlin Iron Bridge Co.................................. photograph.

Forest Electric Co ....transformer switch.

The Reis Electric Specialty Co., Baltimore, Md .... regulating socket.

A. S. Cameron Pump Co., New York, N. Y , steam pump built in section.

Dean Steam Pump Co., Holyoke, Mass..photographs of steam pumps.

Brush Electric Co., Cleveland, O .... photograph of generator.

National Electric Mf'g Co , Eau Claire, Wis..photographs of generator.

Crocker Wheeler Metor Co., New York............ ..... photograph.

Pennsylvania Engineering Co., Philadelphia ....lamps.

DONATIONS TO THE MECHANICAL DEPARTMENT.

Frasse & Co., New York, Lathe and Planer Tool.

Billings & Spencer Co., Hartford, Conn., Screw Cutting Tool.

Prentice Bros., Worcester, Mass., Lathe Fixture.

Dodge Manufacturing Co., Mishawaka, Sample Wood Pulley, 24x8 in.

F. E. Reed & Co., Worcester, Mass., Lathe Fixture.

The Sebastian-May Co., Sidney, Ohio, Ten-inch Speed Lathe.

Gordon Steam Pump Co., Hamilton, Ohio, Framed Engraving.

Brown & Sharpe Mf'g Co., Providence, R. I., Book on Construction and Use of Universal Grinding Machines.

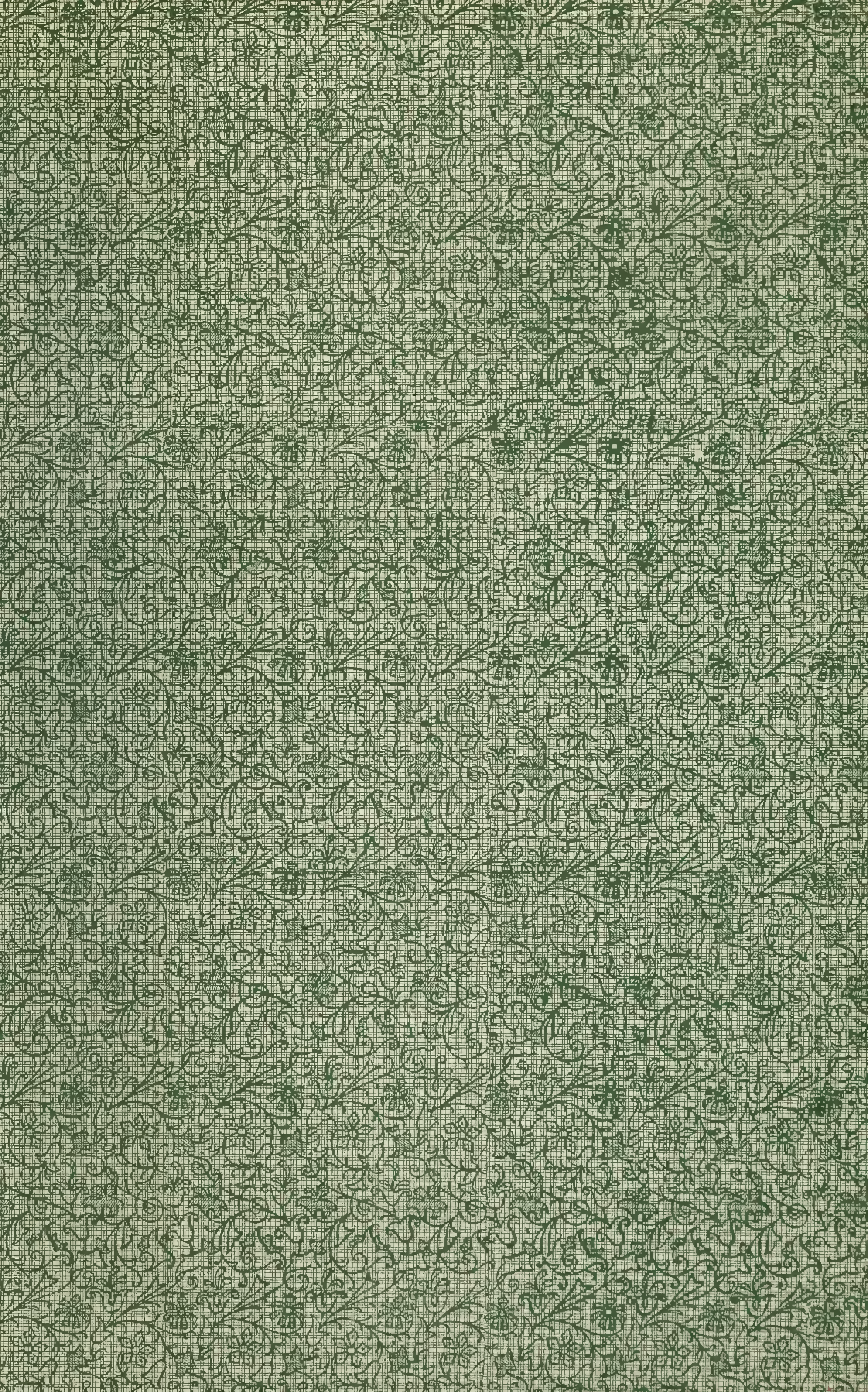
John T. Slocomb, Providence, R. I., Sample Center Drill.

Buckeye Engine Co., Salem, Ohio, complete set of Blue Prints of Engine.

Westcott Chuck Co., Oneida, New York, complete Drawings and Plans of a Light-House.

CALENDAR 1892-93.

Session begins	Wednesday, Sept. 14, 1892
Examination for admission	Wednesday, Sept. 14, 1892
First term begins	Wednesday, Sept. 14, 1892
First term ends	Friday, Dec. 23, 1892
Second term begins	Monday, Jan. 2, 1892
Second term ends	Saturday, March 25, 1893
Third term begins	Monday, March 27, 1893
Sophomore class exercises	Monday, May 1, 1893
Final examinations begin	Wednesday, May 24, 1893
Commencement sermon	Sunday, June 11, 1893
Annual meeting of Trustees	Monday, June 12, 1893
Junior class celebration 10 A. M	Monday, June 12, 1893
Military exercises 4 P. M	Monday, June 12, 1893
Celebration of Literary Societies 8 P. M.	Monday, June 12, 1893
Alumni day	Tuesday, June 13, 1893
Military exercises 5 P. M	Tuesday, June 13, 1893
Address before Literary Societies 8 P. M.	Tuesday, June 13, 1893
Commencement day	Wednesday, June 14, 1893



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